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PAMPHLET CASE No. 9.



BRITISH COLUMBIA

ITS PRESENT RESOURCES
AND
FUTURE POSSIBILITIES.



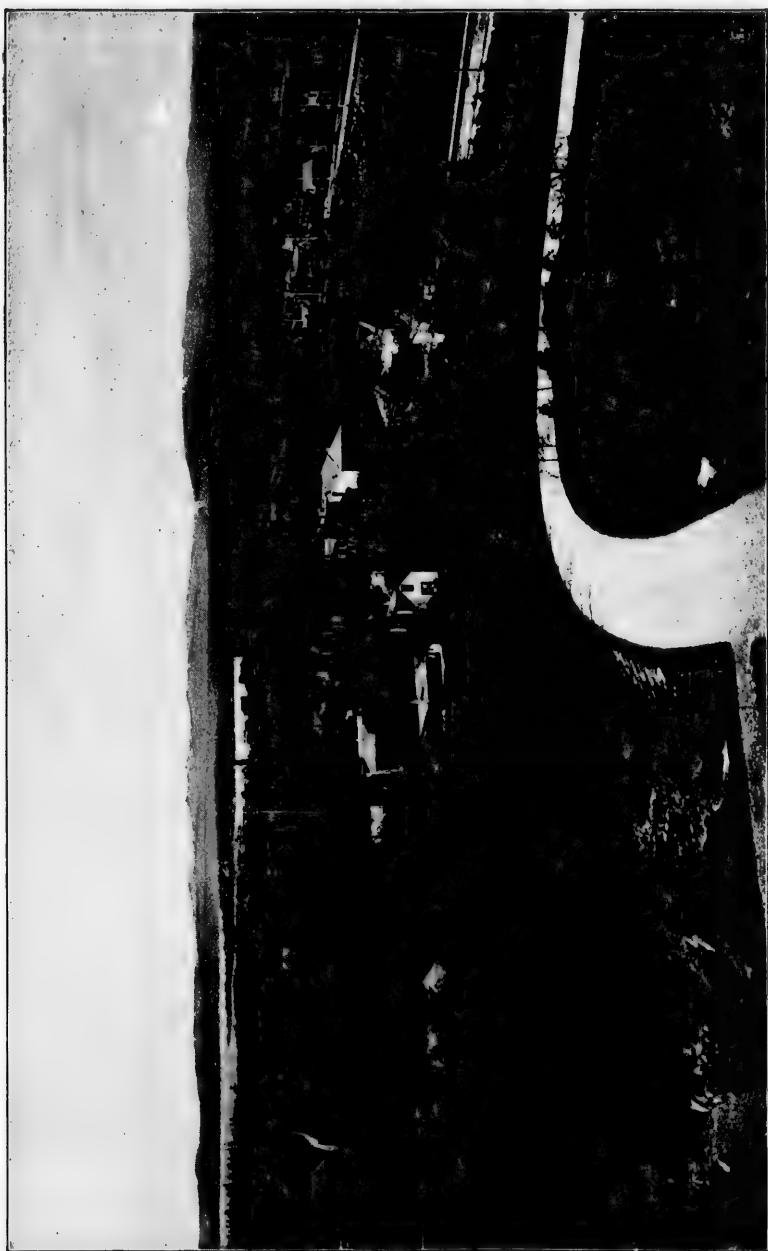












VICTORIA, B. C.—FROM THE E. SUBURBS.

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BRITISH COLUMBIA,

ITS

PRESENT RESOURCES

AND

FUTURE POSSIBILITIES.

A BRIEF ATTEMPT TO DEMONSTRATE THE VALUE
OF THE PROVINCE

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THE matter contained in the following pages has been derived from authoritative sources. For the agricultural data, the writer is indebted to a voluminous and carefully prepared report recently issued under the Department of Agriculture, by Mr. J. R. Anderson. Mining statistics have been obtained from the Report of the Dominion Geological Survey, "The Mineral Wealth of British Columbia," by Dr. G. W. Dawson, and local reports from the chief mining centres. The Statistical Year Book (Dominion Government), and annual reports of the Victoria Board of Trade provided useful information as to commerce and shipping, while several gentlemen well qualified by their intimate acquaintance with the respective industries have supplied the ground work of the chapters on Fishing and Lumbering. The author desires to express his indebtedness to these authorities; he also gratefully records the assistance afforded him by the courteous officials of the Department of Lands and Works, and by many friends whose local knowledge has been of the greatest service to him.

INTRODUCTION.

B RITISH COLUMBIA, notwithstanding the prominence to which it has attained since the completion of the Canadian Pacific Railway placed it upon the chief highway of the world, is still to a very great number of intelligent people, a mere name upon a map. That it should ever exercise an active influence over the destinies of the British Empire, or provide a sphere for the industry of millions, is something of which they have neither heard nor dreamt. The object of the present pamphlet is not only to give a succinct account of the actual condition of the Province to-day, but to suggest the probability of so great a future at no remote time.

The area of British Columbia is estimated at 383,000 square miles ; its population at 54,061 whites, 35,202 Indians, 8,910 Chinese, or 98,173. It is a self-evident fact that a country which has an area more than three times as extensive as that of the British Isles, with a population no larger than that of a moderate sized manufacturing town, must be either very much under-populated or grossly lacking in the means for supporting life. Were the latter the case, it would be manifestly undesirable to invite attention to so unfortunate a circumstance. But even should the former alternative be maintained, the question might reasonably be asked, why the authorities who represent the ownership of such a country should seek to demonstrate this fact, or so long as its inhabitants were prosperous and contented, should tempt others to share their wealth. With the example of certain foreign states before their eyes, those whose attention was directed would be justified in doubting the good faith in which these statements were volunteered, and in regarding with distrust their publication. The answer, however, is a simple one, for the Government in acting thus does not profess to be guided by motives of philanthropic benevolence. It expects as a return for the information provided, not indeed to receive a grant *per capita* for emigrants, regardless of their quality, or means of livelihood, but to induce only those persons

to enter the Province whose presence will aid in the development of its potential resources ; or in homely phrase it invites those only whose company will be worth more than the room they occupy.

A great deal of harm has been effected in recent years by the promiscuous advertisement of new countries. Their productive powers may be great, land may be cheap, trade prospects most satisfactory, wages high, the towns may be increasing at a rate quite without parallel among older communities. But none of these things, nor all collectively, can form sufficient justification for strangers without any means of livelihood except their hands, and without any knowledge of how to shift for themselves except what they have acquired in the narrow grooves of their native place, to flock to some distant land in the belief that steady work and fortune await them. Even skilled labour of the most valued kind has many difficulties to contend with before it can establish itself in a totally new sphere. There are the recognized labour organizations, which jealously guard the interests of their members from outside competition, there are the natural prejudices which always exist against new comers and untried men, and there is above all the fact so often ignored, that *small communities such as prevail in new countries can only employ a limited number of workers in any particular trade*. Five bricklayers, even were they prepared to work at one dollar a day, could not possibly find employment where only one can, though his wages are five dollars. This reflection alone, should be sufficient to deter men from eagerly rushing West when they hear of high wages, regardless of the speculative element which must be inseparable from their venture, and without calculating whether they are prepared to risk their small capital while waiting for the opportunity to establish themselves in their new home.

Let no one therefore, who may read the following pages, imagine that because British Columbia is represented, in what the writer believes to be its true light, as a place of rapidly rising importance, he is therefore certain to find ample and immediate scope for his own abilities. He must rather consider what sacrifices he is prepared to make for the privilege of introducing

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EAST KOOTENAY VALLEY, NEAR FORT STEELE AND CRANBROOK.
H. W. MOUNTED POLICE.



himself and his family into a country so favorably circumstanced. He must deliberate whether the prospect of future success is worth the hazard of his present condition of life, whatever that may be, and should he finally determine upon a step which may prove to him irrevocable, let him blame no one but himself if the struggle turn out a hard one, and the good times which he anticipated be long in coming.

The value of any country to its inhabitants depends mainly upon four conditions: Its supporting capacity; its exporting capacity; its position as regards foreign commerce; and its climate. To these may very properly be added a fifth, namely, the character of its government. By enquiring into the above conditions, a just estimate can be arrived at both of the present standing and future prospects of any political division on the face of the globe.

No one, for instance, would dispute the fact that the prosperity of Great Britain is largely due, in the first place, to the relatively extensive area of her cultivatable land whereby a prosperous yeoman population was encouraged, and enabled to furnish a back bone to the commonalty; secondly, to her numerous deposits of the economic minerals, the presence of which induced the most intelligent and thrifty among her inhabitants to engage in mining and manufactures; thirdly, to her extended sea-board, and the facility afforded by it for maritime pursuits; and fourthly, to her climate, which, notwithstanding many apparent drawbacks, was by its temperate character, well adapted to the nurture of a healthy and vigorous race. The genius of her people for governing and being governed is a fact to which attention need hardly be directed.

It would appear then that there can be no better way of exhibiting the capacities of British Columbia than by treating of them under these heads, for if it can be shown that the Province shares in no ordinary degree all these advantages, it will follow that its ultimate fortune depends only upon a sufficient population, and reasonable time in which to conquer such natural obstacles as are to be met with in a virgin country. But in order to comprehend the frequent references which must of necessity be made to the various local features of so vast a territory, their

widely differing qualities and productive powers, the physical character of the country, and its political divisions must first be briefly described.

PHYSICAL CHARACTER.

The Province of British Columbia may be described as a great quadrangle of territory, seven hundred miles long by four hundred miles wide, lying north of latitude 49° and west of the central core of the Rocky Mountains, extending along the Pacific Coast as far as latitude 55° , and including the islands adjacent. North of that degree of latitude it continues inland to latitude 60° , but is shut off from the coast by a narrow strip of Alaskan Territory, and is bounded on the east by longitude 120° . A considerable part of this northern portion, though of some present value on account of its gold mines and fur bearing animals, is unsuitable for general settlement and is very sparsely inhabited.

The southern half of the Province, it will be seen, lies between tolerably well defined boundaries, and may be treated independently of the northern portion. It forms a large and regular rhomboid, of elevated land, which is supported on each side by ranges of mountains. Of these the eastern and western may be said to be double, and consist respectively of the Rockies and Selkirks* on the east, and of the Coast and Island Ranges on the west.

These mountain ranges exercise so important an influence upon the country that they require especial consideration. The north and south boundaries are merely transverse spurs and elevations orographically connected with the same ranges.

MOUNTAIN GROUPS.

The Rocky Mountains. The easternmost range of the four above enumerated is that of the Rocky Mountains. It is the northern extremity of the great range which forms so well known a feature of the North American Continent. Entering the Province at the 45th parallel of latitude, it constitutes the eastern boundary to latitude 54° , and continues to between 56° and 57° , where it loses its distinctive rampart-like character, and dies down into lower hills. It has been shown to consist of the upturned edges of the strata that underlie the great north-west plain, and its massive walls are formed chiefly of Devonian and carboniferous limestone. Their average height may be stated at about 8,000 feet. "Near the 49th parallel several summits occur with elevations exceeding 10,000 feet, but northwards few attain this elevation until the vicinity of the Bow River and Kicking Horse is reached. The range appears to culminate about the head waters of the Saskatchewan, Mount Murchison being credited with an altitude of 13,500 feet."—(*Dawson, Geol. Sur., 1887.*) There are twelve principal passes, at elevations ranging from

* NOTE.—The Selkirks are, properly speaking, only a subordinate portion of the more western of the two ranges, but since no term has been generally accepted for the entire range, and since the Canadian Pacific Railway has especially familiarized travellers with this name, it has been thought good to apply it to the whole range of which it thus constitutes the best known part.

7,100 feet—the South Kootenay—to 2,000 feet—the Peace River Valley. The value of this great fence to the Province, climatically, cannot be over-estimated. Rising between the wide plains of the north-west interior and the comparatively narrow area of the Pacific Slope, it serves alike to protect British Columbia effectually from the dry, cold north-east winds, and to deflect the mild and moisture-laden breezes of the ocean in their passage from the west.

In addition to the above considerations, these mountains contain a great potential wealth of valuable minerals, extensive seams of coal having been found to outcrop in certain localities on their western flank, and frequent indications being shown of deposits of iron and other useful metals along their course.

The Selkirks. Parallel to the Rocky Mountains proper, and frequently included under one name with them, though of distinct formation, run the Selkirks. This range, which has been shown by geologists to represent an earlier upheaval, and to exhibit an entirely different series of rocks, is so broken and complex as to have received several names in different parts of its course, as though composed of distinctly separate mountain systems. Such, however, is not the case. A relation has been demonstrated to exist between all these subordinate mountain groups, and the reason of their less regular arrangement than the Rockies has been referred to the crystalline structure of their component rocks, which have upturned with more eccentric fractures than the stratified materials of the neighbouring range.

Entering from the south in a three-fold system divided by important valleys, they are called respectively the Purcell, the Selkirk, and the Gold Mountains. To the north of the great bend of the Columbia River, these give place to the term Cariboo Mountains. At about latitude 54° they die out, or are merged in the cross ranges which form the northern boundary of the interior plateau, and from whence spring the head waters of the Peace River.

The economic value of the Selkirk Range lies in the very valuable deposits of precious and base metals which have been discovered throughout the course of its upheaval, and further reference to which will be made in speaking of the localities where they are so far known to occur.

In average altitude these mountains are not greatly inferior to the Rockies, their loftier members rising from 8,000 to 9,000 feet above the sea. The contours are, generally speaking, more rounded and less precipitous than the latter, though in many places they are strikingly pointed with steep and continuous grades, down which snow-slides sweep with resistless force. Their sides, up to several thousand feet, are clothed in dense forests, affording an unlimited supply of good timber.

The average width of the Rocky Mountain Range is about sixty miles, diminishing to the north; that of the Selkirks is about eighty miles.

There is a valley of most remarkable length and regularity, extending from the southern boundary line along the western base of the Rocky Mountains as far as the northern limits of the Selkirks, a distance of over 700 miles, and dividing the two ranges.

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EAST KOOTENAY VALLEY, WILD HORSE CREEK, NEAR CRANBROOK.



Interior Plateau. To the west of these great ranges British Columbia extends in a wide plateau of table land, which has been originally elevated some 3,500 feet above sea-level. This plateau has been, however, so deeply intersected and eroded by lake and river systems that, in many places, it presents an aspect hardly differing from that of mountain regions. At others, however, it opens out into wide plains and rolling ground, with comparatively low eminences, affording fine areas of agricultural and grazing land. The entire district has been subject to vast overflows of lava, of the disintegrated remains of which the present soil is mainly composed. There is a general but very gradual slope of the land from the mountainous country on the southern boundary of the Province to the north, where as has been previously stated, it is hedged in by cross ranges attaining an elevation of from 6,000 feet to 8,000 feet. Notwithstanding this general slope, the principal flow of water finds its way southwards through deep fissures penetrating the mountain boundaries on the southern and western sides. This plateau forms the chief agricultural area of the Province. "The whole of British Columbia, south of 52° and east of the Coast Range, is a grazing country up to 3,500 feet, and a farming country up to 2,500 feet, where irrigation is possible."—(*Macoun*, Geol. Rep. 1877.)

Coast and Island Ranges. The interior plateau is terminated on the west by the Coast Range, a series of massive crystalline rocks of some 6,000 feet in average height. This range has a mean width of about 100 miles, descending to the shores of the Pacific, and is in turn flanked by the submerged Island Range, the tops of which form Vancouver and her adjacent islands, the Queen Charlotte Islands and those of the Alaskan Peninsula. The crystalline rocks of the Coast Range are the source of the rich gold deposits of the Fraser River, which may be said to have first brought the Province into prominent notice, and which are by no means yet exhausted. The basins of cretaceous rock surviving the upheaval of the Island Range, and preserved by it from submergence beneath the Pacific, include the valuable coal measures of Nanaimo and Comox, which at present supply the most important mineral export of British Columbia. The moisture caused by the deflection of the warm sea breezes by these ranges is productive of an enormous forest growth, for which the coast is famous.

"The most remarkable feature of the coast are the fjords and passages, which while quite analogous to those of Scotland, Norway and Greenland, probably surpass those of any part of the world (unless it be the last named country) in dimensions and complexity. The great height of the rugged mountain walls which border them also give them a grandeur quite their own."—(*Dawson*, Geol. Sur., 1884.)

RIVERS.

The unique position of British Columbia as a water-shed, on the Pacific Coast of America, will at once be recognized when it is seen that all the rivers of great importance on that coast, with the exception of one (the Colorado), arise from within its boundaries. The drainage from its extensive area of mountains and highlands is received into the numerous lakes, which have been noticed as forming so striking a feature of the interior. Thence the surplus is discharged

into the few large rivers or their many tributaries, which finally reach the sea. These rivers are the Columbia on the south; the Fraser, the Skeena, and the Stickeen on the west; the Liard on the north, and the Peace River on the east. These rivers are of great size and volume, and the first four are sufficiently navigable to steamers to form water-ways of no small value in the development of the country.

The Fraser. This may be considered the most important river of the Province, from the fact that it lies entirely within the British territory, and that its navigable waters traverse some of the best agricultural lands, and that it has been the chief source of two considerable industries—gold-washing and salmon-canning. Rising from several sources on the west slope of the Rockies, in the neighbourhood of the Yellowhead Pass, it flows north-west for about 190 miles along the deep valley which divides these mountains from the range of the Selkirks. There it rounds the northern limit of the latter, and, turning south, flows for 470 miles in that direction, turning to the west in the last 80 miles of its course before reaching the sea. Its total length is thus somewhere about 740 miles. Before penetrating the Coast Range through the picturesque canyon which bears its name, it is joined by its largest tributary, the Thompson, a considerable stream flowing west from the centre of the interior plateau. For the last 80 miles of its course it flows through a wide alluvial plain, which has been mainly deposited from its own silt, and in the last ten miles it divides, forming a delta, of the richest alluvial soil in the Province. It is navigable to steamers and vessels of ordinary size over this distance of 80 miles, and again for smaller craft for about 60 miles of its course through the interior, from Quesnelmouth to Soda Creek. Its current is rapid, and in the early summer it overflows its banks in the lower part of its course, rendering necessary the use of dykes.

The Columbia. This large and important water-course, which but for the blunders of British Ministers would have undoubtedly formed the main southern boundary of the Province, takes its rise in the Columbia Lakes, latitude 50° , and pursues its eccentric course round the Kootenay Districts, which, together with its confluent the Kootenay, it completely encircles. There is no parallel to the extraordinary windings of these two rivers and their associated lakes. Starting from points so close that they have actually been in one place connected by a canal one mile long, they flow in diametrically opposite directions, north-west and south-east, along the deep western valley of the Rockies, until they reach a maximum distance of 250 miles apart. They then turn, and after passing respectively through two series of lakes—the upper and lower Arrow Lakes and the Kootenay Lake—they unite at a point not more than 70 miles distant from their origins. This point is only about 20 miles north of the boundary, which the Kootenay had already crossed twice, traversing American territory for some 150 miles of its course, the united streams then flow in a southerly direction, being joined by another large river, the Pend d'Oreille, just before crossing the boundary, whence their course is through the state of Washington, about 750 miles to the Pacific Ocean.

The Columbia drains a total area of 195,000 square miles—one-seventh more than the Colorado. In British Columbia it is navigable from the Columbia Lake

to the first crossing of the Canadian Pacific Railway at Golden City, and again from the second crossing at Revelstoke through the Arrow Lakes to its union with the Kootenay. There are small steamboats plying on both these routes, as also on the Kootenay between American points and Kootenay Lake.

The valuable deposits of precious and base metals which have of recent years been discovered in the neighbourhood of Kootenay Lake render it probable that these water-ways will be of the first importance as means for the transhipment of ore, for which purpose they have already begun to be extensively used.

It is much to be regretted that the British Government had not sufficient sagacity to retain possession of the district lying between the forty-ninth parallel and the mouth of the Columbia River. The district had been occupied without opposition by the Hudson's Bay Company, who had a trading station, Fort Vancouver, on the banks of the river, opposite what is now the City of Portland. From thence they were driven to Fort Victoria, on Vancouver Island, by the terms of the treaty of 1846, by which the forty-ninth parallel was established as the boundary line between Canada and the United States. The American people can hardly be blamed for securing so valuable a possession as the Puget Sound, and one of which they have made so good use; but it is evident that, although an imaginary boundary line, such as a parallel of latitude, may be valuable across a great level tract like the interior of the Dominion, it is very inferior to a natural line of demarcation, such as is provided by a wide river, when separating countries of a mountainous and not easily accessible character.

The Skeena. There could be no clearer proof of the general lack of knowledge which prevails of the geography of North-West America than the fact that current educational works ascribe to the Province no rivers except the Fraser and Columbia. The Skeena is unknown even by name to those whose memory is crowded with the minor streams of Europe, and of the eastern side of America; and yet of a length approximating to 300 miles it is greatly superior to any river in England, and would rank on the continent with such as the Rhone, being wider, 130 miles from the sea than the Seine at Paris. It rises from several widely separated sources, the most northern of which are on the Pacific-Arctic watershed N. of lat. 56° , and the most southern to the south of Babine Lake, about lat. $54^{\circ} 10'$. The greatest volume of water is however supplied by a confluent, the Babine River, which flows from the large lake of that name, entering the north fork of the Skeena about 30 miles above Hazelton (lat. $55^{\circ} 10'$). At this place the south fork, known on the maps as the Buckley River, but to the Indians as the Heiligt* River, joins the main stream, which from thence flows in a south-west course, striking the coast about lat. $54^{\circ} 10'$. The river has a wide mouth without any delta, but is dotted with alluvial islands for a distance of nearly a hundred miles from the sea, having an average width of about a mile. Above the Kitsilas canyon, a gorge traversing the Coast Range, it narrows from 800 to 200 yards at Hazelton. The shores up to the canyon do not exhibit much good land except on the bends and islands, which are covered with poplars and small maples. About 20 miles above the canyon the valley widens to some five or six miles, there

* The man in fine clothes.

being good bench land on both sides. This continues considerably above Hazelton, and on the south fork, thirty miles from thence, there is a fine district of prairie extending S. E. through to the Nechaco River, an important tributary of the Fraser. The current of the Skeena is rapid, about $4\frac{1}{2}$ miles an hour, but it may be ascended by stern-wheel boats as far as Hazelton.

The Stickeen. This river, although ignored even by recent works on the geography of North America, is of sufficient magnitude and importance to justify its ranking among the first of the Dominion. Upwards of 250 miles in length, and navigable to stern-wheel steamers for 130 miles of its course from the sea, it forms the main artery of communication for a district of many thousand square miles—in fact it may be said for the entire Province north of latitude 57° . That portion of the Province has been omitted from the accompanying map as unsuited to general immigration, but its capacities must not be under-estimated. It has been compared by Dr. Dawson with the Russian Province of Vologda, which at present supports a population of over one million. It can grow the same products, and in mineral wealth is probably vastly superior. At present it is hardly touched except by fur traders and gold miners, and yet contributes no small quota (about \$150,000 annually) to the revenues of the country.

The Stickeen rises from several sources north of latitude 57° , one of these springing from the neighbourhood of Dease Lake, on the Pacific-Arctic watershed, upon which the chief centre of distribution for the district (Laketon) is situated. Its navigable course is interfered with by rapids until the Great Canyon is passed, but from thence, though the stream averages some five miles an hour, it is quite navigable. It flows mainly south-west, and enters the Pacific by the large inlet, or fjord, which passes through Alaskan Territory in latitude $56^{\circ} 40'$. For the last twenty miles it flows more sluggishly through a wide alluvial district, but has no true delta like the Fraser. It is here between two and three miles wide. Above this point it occupies a valley with receding shores several miles in width, until it becomes restricted at the Little Canyon to a gorge three-fifths of a mile long and a few hundred yards wide, after which it widens again as far as Glenora, 125 miles from its mouth. Twelve miles above Glenora it is again restricted within the gorge of the Great Canyon, above which it is of no navigable value. The main stream flows from an origin some 120 miles to the south, but the branch running from Dease Lake is the only one of any importance, since it provides a pass in the surrounding mountains for a road to that point.

Liard and Peace Rivers. These rivers, which with their numerous tributaries drain the north-eastern quarter of the Province, are both of sufficient size to make them of noteworthy importance in any country, but are of only inferior value, as not communicating with a freight-carrying ocean. They are themselves confluent of the great Mackenzie River, which empties into the Arctic Sea.

The country through which the Liard River flows is little known, and its capacities have not hitherto been gauged. The Peace River, on the other hand, drains a district which has long been considered of agricultural value. Such confidence, indeed, had the Dominion authorities in this country, that 3,500,000 acres were accepted by them in lieu of such lands within the Canadian Pacific Railway

belt, as the Province was unable to grant towards railway construction, from the fact that they were already occupied by settlers.

Each of these rivers has a course of between 300 and 400 miles through British Columbia. Over the greater part of this distance they are navigable to canoes and small craft.

In addition to the above rivers, it will be seen that the sources of the Yukon lie within the British Columbia boundary line, though that great watercourse is of little practical value until it passes into the Territory of Alaska; and that the *Naas River, the only stream of secondary importance which reaches the coast (latitude $54^{\circ} 55'$), is by no means useless, as it affords communication with a district otherwise difficult of approach, and is the seat, at its mouth, of an important fishing industry.

LAKES.

The lakes of British Columbia are, for the most part, enlargements of her numerous water-courses, caused by obstructions, the result of their debris and silt. The rapidity of current and continual freshets from the mountain snows render such natural dams matters of more or less frequent occurrence nowadays, but in a post-glacial age, when most of the lakes appear to have been formed, the enormous torrents which flowed through the country created them on a scale of much greater dimensions. Local circumstances have tended to group these lakes and chain them together along the same river beds, as will be seen by referring to the map. For instance, the Arrow Lakes occupy 120 miles of the course of the Columbia, and the Shuswap Lake and Lake Kamloops have a length far greater than all the unenlarged portion of the South Thompson River. In fact, every part of the interior appears netted together by streams and lakes.

POLITICAL DIVISIONS.

The Province has been divided into eighteen districts for electoral purposes, nine of which are on Vancouver and the adjacent islands. These districts practically serve the same as counties, and although liable to subdivision with the increase of population, will undoubtedly remain as permanent boundaries.

From the interior to the coast—in which order they will be taken, since the main road into the country, the Canadian Pacific Railway, approaches from that side—they are: East Kootenay, West Kootenay, Yale, Lillooet, Westminster, New Westminster City, Vancouver City, Cariboo and Cassiar.

The Island districts, from the south to the north, are Victoria City, Victoria, Esquimalt, Cowichan, the Islands, Nanaimo City, Nanaimo, Alberni and Comox.

The East and West Kootenays. The Kootenays, embracing an area of 16,500,000 acres, comprise a tract of country not greatly removed from a right-angled triangle in shape, of which the apex is a point north of the great bend of

* Recent explorations conducted by Mr. A. L. Poudrier, D. L. S., have demonstrated that this river is much larger than has hitherto been supposed, in fact very little inferior to the Skeena, and drains a fine agricultural district.

the Columbia, the base is the forty-ninth parallel, the hypotenuse is the watershed of the Rocky Mountains, and the third side a line some ten miles west of the Columbia River and Arrow Lakes. This triangle is again divided by a line from the apex to the base along the main water-shed of the Purcell branch of the Selkirks, into two portions approximately equal, East and West Kootenay, the former being the larger by about one-eighth. Access to East Kootenay is obtained from the interior by several passes over the Rocky Mountains, of which the principal are the Kicking Horse and the Crow's Nest. The former is that used by the Canadian Pacific Railway; the latter, in the neighbourhood of which extensive coal deposits have been discovered, has been chosen for a projected line, which is to secure a more direct route to the southern portion of the districts and the mines situate on Kootenay Lake. At present good waggon roads supplement river communication between the Canadian Pacific Railway and the boundary, and a short railway line has been constructed from Nelson, on the Kootenay Lake, to Robson at the junction of the two rivers, along a portion of the Kootenay River which is impassable by boat.

These districts include three important valleys formed by the three-fold division of the Selkirk Range. The first is a portion of the great western valley of the Rockies, and is watered by the upper reaches of the Columbia and Kootenay. The second valley is that lying between the Purcell and Selkirk Ranges, and is occupied by the Upper and Lower Kootenay Lakes. This is the chief seat of the present quartz mining activity, to which the Kootenay Lake provides the main water-way. Access to this lake from the United States is easy *via* the Kootenay River, and a railway is also in course of construction—the Nelson and Fort Sheppard—which will secure direct communication with the Great Northern Railway throughout the year.

Nelson, Kaslo, Ainsworth and Balfour are towns which have come into existence as centres of supply for the mines. (*See illust. next page.*)

The third valley, lying between the Selkirk and Gold Ranges, is occupied by the second bend of the Columbia River and the Arrow Lakes, and is at present the chief means of communication, by steamboat, with the Canadian Pacific Railway. To the north of the railway lies the region known as the Big Bend. Revelstoke, at the second crossing of the Columbia, is a town of growing importance, as are also Golden and Donald, on the eastern side of the Selkirk Range.

Yale. Yale District is a rectilinear section of country, west of Kootenay, the north and west boundaries of which appear to have been designed to conform approximately with the great right angle made by the Shuswap and Kamloops Lakes, the Thompson River, and the Canyon of the Fraser. It comprises an area of 13,500,000 acres, of which, probably, a larger proportion is of agricultural value than in any other district. This includes the countries of the Okanagan, the Nicola, the Similkameen, the Kettle River, and the Kamloops bunch grass district. Access is now obtained into the first of these by the Shuswap and Okanagan Railway, a branch line from the C.P.R. at Sicamoose, to Vernon, a distance of fifty-four miles. It is considered the most attractive and promising farming country in the Province. The railway follows the course of the Spallumcheen



WEST KOOTENAY.

KOOTENAY LAKE FROM ABOVE AINSWORTH, LOOKING N.

River to Enderby, a distance of twenty-six miles, where is situated a roller flour mill, affording facilities for the large wheat farms of the surrounding country; thence twenty eight miles to Vernon, on the north-east side of Okanagan Lake. The lake is 75 miles long, and surrounded by the finest land.

The Nicola is approached from Kamloops by a good waggon road. It is a stock-raising district of considerable capacity, and has also of late years been the scene of energetic mining operations. Pyriteous gold-bearing ores have been discovered and worked at Stump Lake, and Granite Creek to the south is the site of a recent placer excitement. Iron and coal abound, also, in the Nicola country.

The Similkameen district is entered by a trail from Hope on the Lower Fraser, but as this involves crossing the Hope Mountains at a high elevation, it has become of less importance since the country has been opened to the north and good communication afforded from that direction. It is chiefly a grazing district, occupied by large cattle runs. Further east, the Rock Creek mines are situated on a branch of the Kettle River. There are gold hydraulic works and argentiferous galena mines at this point, both of which it is understood, are doing well. The Kettle River flows through the Grand Prairie—a good farming country north of the boundary.

To the north again the Cherry Creek mines are being developed, and in the immediate neighbourhood of Hope silver ores have been found in what promise to be paying quantities.

Kamloops, the principal town in Yale District, is situated at the confluence of the North and South Thompson Rivers, about seven miles above the head of the lake of the same name. It is in the centre of a grazing country of extensive area.

The western border of the district includes that part of the Coast Range through which the Fraser passes on its way to the sea. The river rushes through a deep defile, the sides of which have in many places been cut into gravel benches at an earlier period of its history. These benches were the scene of the gold washing excitement of 1858 and the following years. At other points the rocky cliffs of the enclosing mountains rise abruptly from the water's edge without any shore. Round these precipices the engineers of the C. P. R. excavated its road-bed, a work of great difficulty and danger, in which several lives were lost. The Cariboo waggon road, which preceded the railway by nearly thirty years, also scales the face of these cliffs, and still testifies to the energy of its builders, though no longer in regular use.

The Fraser passes out of the canyon at Yale, the head of navigation and starting point of the Cariboo stage, but since railway construction has fallen into decay. Thence to Hope the valley is continually widening and assuming that character of an open farming land which lower down it more markedly presents. A few miles below Hope the boundary of the district is crossed.

Lillooet. This district, comprising an area of 12,500,000 acres, lies to the north of the last, as far as lat. 52° and extends west to long. 124° . It contains, therefore, a large proportion of the interior plateau, but as on the whole the



region is drier than that to the south of the railway from the lofty Coast Range more effectually intercepting the moist winds, irrigation has more to be depended upon. The soil is almost everywhere very rich, and there are a comparatively large number of excellent farming and stock-raising tracts. Of these the Bonaparte River Valley, Lake La Hache, the Anderson and Seton Lakes, and the Valley of the North Thompson may serve as examples. The main artery of travel is the Cariboo waggon road, which traverses the district from south to north. (*See illust.*)

The Fraser in its course through the district is not navigable, except by canoes. Grain is, however, in this way transported down the river from Lillooet to Lytton, at its junction with the Thompson, the canoes being hauled up again by Indians.

Lillooet, the chief settlement, which was a place of much greater importance before the Yale and Clinton section of the Cariboo road was constructed, is 862 feet above sea level on the bank of the Fraser.

Westminster District. This large district containing some 36,000,000 acres of land, is practically divisible into two, the southern portion comprising the delta of the Fraser and the coast line up to the head of Jarvis Inlet, lat. $51^{\circ} 20'$, and the northern a vast triangle of territory between lat. 54° and long. 124° , bounded by the coast, and including the many large islands adjacent.

The Fraser lands and delta are the seat of some of the most important industries of the Province. Farming, lumbering and salmon canning are prosecuted with energy and success. Much rich alluvial land is being yearly reclaimed, and a comparatively dense population is gathering together both in the cities of New Westminster and Vancouver and the neighbouring municipalities. The first of these cities, fifteen miles from the mouth of the Fraser, was the original capital of British Columbia before its union with the Island of Vancouver, and though for many years after the seat of government had been transferred to Victoria it remained stationary, it has already developed into a well built and handsome town, with a rapidly increasing community. The growth of Vancouver City is now a matter of history. Since its foundation as the terminus of the C. P. R. in 1885, it has sprung into a city of some 14,000 inhabitants, earnest of a far greater development in the near future. It occupies a beautiful position on Burrard Inlet and the Straits of Georgia, and has every advantage that a fine harbor can afford.

Lulu and Sea Islands, at the mouth of the Fraser, and the Delta Municipality to the south contain lands of great richness which, whenever drained, return a handsome profit to their cultivators. Further up the river the Matsqui and Sumas prairies have been successfully dyked, and the Pitt River meadows are now undergoing a like reclamation. These delta lands may be said to be the only extensive areas of level agricultural country west of the Coast Range.

At Mission City, forty-three miles from the coast, a branch line—the Westminster Southern Railway—crosses the river and affords direct communication with the cities of Washington State.

The great triangle to which reference has been made as forming the northern portion of Westminster District presents hardly any features which have not been



CARIBOO WAGON ROAD.
BIG BELLE ABOVE NORTH THOMPSON RIVER.

hitherto described in speaking of other parts similarly situated. In the interior east of the Coast Range we find a district exhibiting characteristics identical to those of Yale and Lillooet. There are the same rolling table-lands, the same enclosed lakes with wooded shores or open meadows, the same numerous water-courses. Much of this land is consequently of no inconsiderable value, but owing to the extreme difficulty in the way of communication and freight transport, it is only of recent years that any attention has been drawn to it; indeed it may be said to have been practically an unknown region. Travel led along the left bank of the Fraser, diverging eastwards into the wealthy mining district of Cariboo, or from the coast to the far north, across by the Skeena Forks and Babine Lakes to the mountains of Omineca. Access from the west was hardly possible owing to the rugged and precipitous mountains which on all sides hemmed in the inlets of the coast. Nevertheless somewhat glowing reports were from time to time brought down by miners and traders who from some chance or other had found their way across this region. In 1890 the present government took steps to verify these reports by sending an experienced surveyor, Mr. A. L. Poudrier, who thoroughly explored and mapped out the district.

Following upon these exploratory surveys, it is purposed to lay out the most suitable lands in townships, when they will be open for settlement.

A railway company—the British Pacific—which has recently obtained a charter, has been projected to carry a line from Winnipeg, west across the northern portion of the Province to the sea-coast, thence crossing to the north-east part of Vancouver Island, and continuing to Victoria. Should this ambitious undertaking be carried out, it will at once place this portion of Westminster District in direct communication with the outer world, and no doubt greatly enhance its value to the Province.

Cariboo contains 59,250,000 acres. This district, which lies between lat. 52° and 60° , and long. 129° and 124° —the lower eastern boundary line from lat. 59° , being extended along the main water-shed of the Rockies to long. 118° —may be considered as comprising a Pacific and an Arctic slope.

The Pacific slope, or surface which drains into the Pacific Ocean, is covered with broken mountain ranges, the northernmost masses of the Selkirks, here called the Cariboo Mountains. West of the Fraser and north of the Chilcotin there is a fine country, watered by the Blackwater, Nechaco and Buckley Rivers, containing much land suitable for agricultural purposes. This may be said to be the only extensive farming area in the Pacific portion of Cariboo. It is shut in to the north by the highlands forming the Pacific Arctic water-shed. To the east of the Fraser, though there is a limited extent of good bench-land in the immediate neighbourhood of the river and some of the lakes, the district is pre-eminently a mining one, and can only be expected to support a large population by its mineral development. In the past this has not been inconsiderable, some fifteen millions dollars worth of gold having been washed out of the placer claims in the immediate neighbourhood of Barkerville. Seeing that the entire area of these claims is not more than a few miles in extent, the gold field of Cariboo ranks for its size as one of the richest that has ever been discovered. At the present time the industry

languishes, since the most profitable placers have been exhausted, and the era of quartz mining is retarded for want of railway communication.

The country may be chiefly described as a tract of mountains and table-land, three-fourths of which is probably over 3,000 feet above sea level. Little forest grows above this height east of a line drawn from the middle of Quesnelle Lake to the head of Swift River, which marks the contact of Mesozoic rocks with the auriferous schists of the Selkirks. Timber is therefore found only in detached clumps and in sheltered situations. Westward the surface of the country is smooth and pleasing. Snow lies over the greater part of four months in the year, and Quesnelle Lake is frozen up from November to March. East of the Bear Lake valley the mountain tops are rugged, the line of perpetual snow being between 7,000 and 8,000 feet above sea level.—(*Bowman*, Geol. Sur.)

In complete contrast to this country, though further north and upon the Arctic slope, is that of the Peace River and her tributaries. It has been described as "a magnificent agricultural and pastoral country," (*Selwyn*), and again as "a very fine country where the excellent soil and large tracts of land facing south offer great facilities for farming."—(*Horetsky*).

Although ten degrees north of Ottawa, and 1,900 feet above sea level, in October the minimum thermometer registered 46°, the grass was quite green, and very fine cauliflowers were growing uninjured by frost. Potatoes, turnips, and barley were found in perfection. On the east and west bends of the rivers, large tracts of natural prairie exist with southern exposure. In this district, between the Parsnip and Pine Rivers, "the Rocky Mountains exist only as a broad, undulating and hilly watershed."—(*Selwyn*). The country in climate and fertility would probably compare with Poland and the adjacent provinces of Russia.

Cassiar. What little can be said about the district of Cassiar has been already stated in describing the general features of the Province. The greater part is still unexplored, and there is probably not much reason for some time to come that it should be investigated, except by gold seekers and trappers. That it will ever form an inducement to the general settler is doubtful, certainly not so long as the more fertile and milder regions to the south still remain unoccupied. Population will gather along the fertile benches of the Stickeen, drawn thither by the canning and lumbering industries at the mouth, and with an increase in population roads and facilities of communication will proportionately increase. It must be remembered that for the sturdy races of northern Scotland, Iceland and Scandinavia, who are accustomed to a sea coast life, the hardships to be encountered in this country are probably much less than those they endure at home, and the prospects of securing a competency much greater. Indeed the severities of climate are hardly to be compared with those met with in the North-West Territories of the Dominion, and only appear forbidding from comparison with the easy life and genial climate which generally prevail on the Pacific Coast. The lot of the native Indian races is here far happier than what falls to the share of many a peasant in northern Europe, and it can hardly be doubted an exchange would readily be effected were facilities afforded to men of the latter class. In no country is the

native population so prosperous or contented ; and when we find Indians able to accumulate sums of money which would indeed appear fortunes to the agricultural labourer of England, we cannot wonder at the steady transference of interests from Atlantic to Pacific shores.

Vancouver and other islands. The submerged mountain range which lies to the west of the mainland, is represented by an archipelago of islands, great and small, the most prominent being Vancouver and the Queen Charlotte Islands. Of the others it may be briefly stated that they reproduce in miniature all the physical features of the larger group.

Vancouver Island occupies greater prominence than it would otherwise have done had it not been for two circumstances, one that the capital of British Columbia is situated upon it, the other that coal has been discovered and worked very extensively. The former is perhaps rather the effect than the cause of the wholesale trade of the Province centering in Victoria. The Hudson Bay Company, driven from its post—Fort Vancouver—on the Columbia River, by the Ashburton Treaty, which ceded the Puget Sound districts to the United States, chose Victoria as the seat of its chief trading station and the port of entry. From this time the city became of first importance as an entrepot for English trade with the interior of the Province, and, stimulated by the wealth derived during the gold excitement, it assumed a position which it has never yielded.

The island may be described geologically, as a group of upturned gneissic rocks, embracing certain tertiary areas and worn down by glacial action, so that in one place extensive gravel moraines, in another beds of boulder clay, are to be found, while in a third a regular series of late sandstones alternate with the barren cliffs of trap. Upon such unpromising surface, generations of fir trees have flourished, and by their decay have gradually deposited a mould of increasing thickness sufficient to provide suitable ground for other forms of vegetation, until the country has become covered with a dense growth of timber varying according to its situation and adaptability to the wants of each particular kind. Thus, upon the ridges the pines and many species of undergrowth have held their own, best suited to a moderate degree of moisture and the rocky subsoil. Upon the boulder clay, alder, poplar, and willow have contended successfully against the larger trees and where the gravel has afforded insufficient moisture for the conifers, the hardy but more slow growing oaks, which had no chance for existence in the dense pine forests, have gained a foot-hold, and stud level plains clothed with native grass. Maples appear to have succeeded in some places the burnt out pines ; indeed in time much the same sequence of soft and hard timber might be expected on this coast as is known to have occurred on that of the Atlantic, where firs, oaks and beeches have followed in successive order.

Victoria (*see frontispiece*) is situated on gently rising ground facing the south and west, and lying on a narrow inlet, which provides a harbour for all vessels except of the largest size. For these a wharf has been recently constructed outside the entrance and the adjacent harbour of Esquimalt secures ample additional anchorage both for merchant vessels and those of the Royal Navy, whose station and naval yards are there located. The greater part of the townsite and neighbouring ground is

upon a gravelly soil, consequently oak trees are a prominent feature in the landscape. There is much good farming land in the vicinity, especially upon the Saanich Peninsula which trends to the north. Auriferous gravels have been worked in the neighbourhood of Sooke, about twenty-five miles distant on the southern extreme of the island, but with inconsiderable results. Iron ore has been discovered in the same locality in what promises to be profitable quantity. Victoria is connected by the Island Railway with the coal fields of Nanaimo. Here and at Wellington, about five miles distant, are collieries which now supply the chief mineral export of the Province. The railway passes through the centre of Cowichan District, an extensive farming country where there are several thriving settlements. Further north on the east coast is the valley of Comox, the finest agricultural district on the island, and centre of another coal field of great extent, which has only recently been developed. The product of the Union Mines at Comox is shipped from wharves situated on the harbour. To the north again lies a region little known except for its timber. On the west coast the principal settlement is Alberni, on a long narrow inlet known as the Alberni canal, and surrounded by good farming land. Off the east coast lie many islands, the largest of which is Salt Spring. These islands are chiefly occupied by small farms and sheep ranches. In the interior of the Cowichan District is the lake of the same name, on the shores of which is a dense growth of magnificent timber, and which is the site of an important lumbering industry. Little is known of the interior of the island except that there are some lofty mountains and elevated plateaus of grass land, which have hitherto not been rendered available by communication with the coast.

Queen Charlotte Islands. These islands are at present chiefly the abode of a Indian tribe, the Hidakhs. There is a Hudson Bay post at Masset on the north, and an oil curing factory has been established at Skidegate, on the north-east corner of the channel which separates the two islands. So far as is known the land is very similar to that on Vancouver. Coal fields have been discovered, but not yet worked, and a gold reef at the southern extremity, which for a time promised well, had to be abandoned, as it was found to dip below sea level. This reef contributed the first gold discovery in British Columbia.

The islands lying between the northern extremity of Vancouver Island and the Mainland are only inhabited by Indian tribes, and little is known of their capabilities. Texada Island, opposite Comox, is highly mineralized; gold quartz has been prospected, but hitherto not profitably worked, and iron ore of excellent quality is being regularly shipped to a smelter in the United States. There can be little doubt that further investigations will demonstrate both the existence of profitable mines and of more agricultural land suitable for settlement on these islands.

I.

SUPPORTING CAPACITY OF BRITISH COLUMBIA.

The first questions which are naturally asked by those enquiring into the resources of a country are : what agricultural backing has it got ; what is the amount of land available for plough or pasture ; is the soil fertile, and can the crops be well harvested ? We shall attempt to satisfy these enquiries in the present chapter.

It is exceedingly difficult, as any one who has followed the above short geographical sketch can very well imagine, to estimate the total quantity of land in the Province suitable for farming or ranching. Situate, as much of it is, in the mountain valleys along the shores of streams and lakes, or on rolling high lands and benches, remote from accessible ways, many thousands of acres must for the present escape the notice of the settler. Even of those districts within easy reach of communication, a vast amount is hidden by the density of intervening forests and the impenetrable character of its own under-brush. Much of this is, however, of the finest quality and will well repay the cost of cultivation. Clearing, expensive though the process may appear at first, is in the end cheaper than manuring, as any one who has had the opportunity of making comparisons must be well aware, and it will be long years before the richer soils of the Province need artificial strength. Of the 300,000,000 acres and upwards, estimated to lie within its borders, it is probably a very moderate computation which admits 10,000,000 to consist of pasture and arable land within existing means of communication.

Statisticians are agreed upon an average of something under three acres as requisite for the support of human life. It would not then be an exaggeration to say that there was room for some 2,000,000 or 3,000,000 on the available land of the Province. This would indeed appear a very moderate estimate if a comparison be instituted with the most mountainous countries of Europe and their existing populations. Taking for example,

Switzerland and Norway, the former with a gross area of about 10,000,000 acres, supports a population of nearly 3,000,000; the latter with eight times the area has over 2,000,000 inhabitants. Less than one thirtieth of the land in Norway is cultivated, about 2,700,000 acres, consequently an amount wholly inadequate for the support of its people. It is true that where conditions of life are so much easier than in older countries, to institute rigorous comparisons would be misleading, but enough has been said to show how great might be the increase of a purely agricultural population, without unduly straining its resources, and how unreasonable is the impression that there is no farming background to the Province. At the present time nearly two million dollars worth of farm produce is imported annually, almost all of which could and ought to be furnished from within its own borders. This fact affords some slight indication of the state of the market, especially when it is remembered that these importations pay a heavy duty, more than equivalent to the cost of internal freights.

We may now proceed to enquire more closely into the various conditions of farming, as practised in the different districts.

Kootenay. We have already referred to the class of agricultural land in East and West Kootenay. It is for the most part confined to the shores of the Columbia and Kootenay Rivers, and the great lakes. It occurs in patches of no very great extent. Much of the land is of the nature of water-meadows, and is therefore liable to overflow. Although this affords good pasture for cattle, and excellent hay is cut from it, extensive draining would need to be resorted to in order to make it of any use except for the wild grasses which at present grow luxuriantly upon it. The soils are very fertile and yield first rate crops of grain and roots whenever cultivation has been attempted. (*See illust. p. 9.*)

Kootenay can never be regarded as an agricultural district, although there is more than a sufficiency of land for the local markets were it cultivated. On the other hand, the population of the towns and mining camps is increasing beyond all proportion to that of the farming class. Means of communication are wanting and it is probable that agriculture will be chiefly pro-

secured for years to come in small patches contiguous to the chief centres of consumption. All fruits of the temperate zone grow well, and for these there will be a continual demand. Hay is in great request for the numerous pack-trains employed in transporting ores from the mines. This is cut chiefly from the water-meadows in the Kootenay and Columbia Valleys, but much is also imported.

There are at present only about eighty-five farmers in the district, not more than three and a half per cent. of whose land is reported as under cultivation, which would leave a rather large margin for future possibilities, even admitting a considerable per centage of unsuitable land to each farm.

Yale. The southern portion of the Interior Plateau which is included in this district, has been previously alluded to as one of the most promising agricultural localities in the country, and as one which since railway communication has been provided is rapidly coming to the front in development. For a cattle ranching, wheat growing and fruit-bearing country, it exhibits remarkable qualifications and must soon become both populous and prosperous. This is not to say that there is no unproductive land in it, for there are mountains, forests and wastes here also. But the proportion of good land is greater, the level ground more extensive and the clearing less arduous than in most other accessible parts of the Province. The climate, though exhibiting greater extremes of heat and cold than are experienced upon the coast, cannot be called a severe one. Warm enough for the cultivation of the grape in summer, the winters do not preclude the open pasturing of cattle and horses, except on rare occasions and for brief periods of time. It is true that prudent ranchers have found it advisable to make ample provision of hay against emergencies; nevertheless, many a winter passes when this store is not drawn upon. The dry, bracing cold has proved healthy for man and beast. If there be a fault, it is a lack of moisture, but there are many places where irrigation is feasible and many others where it is not needed. The scenery is beautiful, and what is more to the purpose in a country where grandeur of scenery is at a discount, pleasant to the eye and suggestive of comfort. Even with the moderate amount of



YALE DISTRICT, SALMON VALLEY.
VIEW ON ROAD BETWEEN SALMON RIVER AND SPALLUMCHEEN

cultivation which at present exists in the Okanagan, a home-like air prevails, but were they anything approaching to the conditions of older countries, it would be hard to conceive a more desirable land to live in.

It has been computed that if the available acreage in this district alone, were to be sown in wheat, a crop larger by one-third than the whole yield of Manitoba, would be reaped. Of that already under cultivation, the average yield is about forty bushels to the acre, in some cases running as high as sixty-five. The quality of grain is excellent and furnishes the finest grades of flour. In vegetables, roots and fruits, the country cannot be surpassed. "The most important fruit district will be developed in the North and South Thompson, Spallumcheen and Okanagan Valleys, where not only extensive areas exist, but the most favourable conditions. * * The prospects of peaches, grapes and other fruits requiring certain degrees of warmth for successful cultivation, are excellent all over the interior." Almonds have already been grown with success.

It is difficult to expatiate upon the capacities of this beautiful country without incurring the charge of extravagance. Were there no agricultural land in the Province elsewhere, enough might be found here to supply a population sufficient to establish her other industries.

The following table gives some idea of the present state of farming in the interior :

District.	Settlers.	Land Cult.	General Remarks.
Penticton.....	145	2.5 per cent.	{ Large relative amount of pasture land. Much good agricultural land idle from lack of marketing facilities.
Okanagan Mission..	95	7 per cent.	{ Large amount of agricultural land idle. 2000 acres of cereals; 2000 hay; 7000 cattle; 1000 sheep; 1500 swine; 650 horses. Great quantities of fruit grown.
Vernon, etc	155	10 per cent.	{ Wheat, oats, cattle and fruit. Indian corn 14 to 16 feet high.
Spallumcheen.....	140	25 per cent.	{ Excellent grain; soil very fertile and of great depth. Obligated to burn straw as land would be too rank. Large steam roller mill at Enderby.

(See illust. for characteristic scenery of this district, not to be confounded with the next.)



YALE DISTRICT.
VERNON, CENTRE OF THE OKANAGAN COUNTRY.

District.	Settlers.	Land Cult.	General Remarks.
Salmon River.....	40	6 per cent.	{ Heavier rainfall here than elsewhere. Root crops good. Drainage needed. All grain and fruit do well. Oats average 6 feet in height.
Shuswap.....	25	20 per cent.	{ Large quantities of cattle and hogs sent to coast markets.
Ducks and Grand Prairie..	50	7 per cent.	
Kamloops.....	125	15 per cent.	{ Cattle ranching chiefly, but large quantities of hay, roots and vegetables grown.
Nicola.....	120	2.5 per cent.	{ 151,286 acres occupied, mostly for cattle. 15,000 head of cattle; 1,500 sheep; 1,000 horses.
Spence's Bridge.	65	12 per cent.	{ Grapes, peaches and many fruits. Spring wheat and barley yield heavily; beans do well. Irrigation necessary throughout district.
Lytton.....	25	.. per cent.	{ Cereals, beans and fruits. 20 tons of melons; 1½ tons citrons; 2½ tons tomatoes; 204 tons of general produce from two farms in this place. Grapes, apples, strawberries.

Lillooet and Cariboo. In the vast portion of the Interior Plateau which extends to the north from the line of the Canadian Pacific Railway, farming is confined to the operations of some three hundred settlers, and even these confessedly provide a much smaller quantity of produce than they could do, if the demand of the local market justified an increase. The fact is that communication with the centres of consumption is so difficult that it absolutely precludes the profitable growth of any crops in excess of what are needed in the immediate neighbourhood. With the stock ranchers the case is different. Cattle can be driven for long distances, and large bands are brought down to the coast in good condition. Indeed, some of the finest ranges in the Province are to be found in these localities. But as regards farming in its more generally understood sense, namely, the production of roots and cereals, of fruit, butter, cheese and the like, it must be acknowledged that the lack of market facilities is at present an insuperable barrier to anything like development. There are many excellent farms of a similar character to those further south, and there are extensive tracts of fine land practically unoccupied. Irrigation is necessary in many places, owing to the prevailing

dryness of the climate, and is resorted to with great success wherever it has been attempted. The scenery is diversified and very beautiful, especially round the numerous lakes and water-courses. Altogether, it must be conceded that nothing but want of communication stands in the way of this portion of the Province being turned to profitable use ; but until this is pro-



LILLOOET DISTRICT.
VIEW NEAR BRIDGE RIVER.

vided, the country must be regarded as rather having a potential than an actual value to the agriculturist. The present occupants of the land have about 13% of their holdings in hand. Grain, hay and roots are the principal crops ; fruit has not been attempted to any extent, the colder nights appearing to discour-

age this undertaking. Sheep do very well, and would be much more favoured as stock, were it not for the wolves and coyotes, which are too numerous and destructive for the sheep farmer to succeed. Cattle, horses and pigs are bred in considerable numbers, and a limited amount of dairying is done for the local market. Whether railway communication be finally afforded by branch lines running north from the Canadian Pacific, or by a new trunk line coming across this district from the east, it will nowhere be more welcome than in this, the earliest to attract attention and the longest neglected part of the interior.

The Coast. West of the Coast Range there is to be found in the valleys trending down to the shore line, land ample for the support of a thriving yeoman class, and which is already by no means destitute of inhabitants. The wide delta of the Fraser, though it cannot be said in any degree to be fully occupied, has over a thousand farmers, and every year sees its rich alluvial soil brought under a more perfect form of cultivation. At present not more than ten to fifteen per cent. even of the land occupied is made use of, so that it is very clear here also the margin for increase in an agricultural population is a wide one. The opposite conditions to those experienced in the interior plateau prevail, for instead of there being any need of irrigation, the rainfall is very heavy and the land frequently too wet. Dyking is resorted to somewhat extensively, but the country is too young to experience the full benefits of a complete system of sub-drainage. There are consequently not infrequent complaints of watery root crops and other damage necessarily arising from imperfectly drained land. The soil is exceedingly rich and of great depth. The crops are enormous in size and quantity; pears, apples and stone fruits grow very well; hops, onions and all roots thrive. Timothy averages three to four tons per acre; oats and other grains yield proportionately large crops, but are not so hard or so well adapted for milling as those of the interior.

It may be said that this class of land will continually improve under cultivation and practically can never wear out, its present faults tending rather in the direction of rankness and over-fertility.

The Islands. Upon Vancouver Island and the smaller islands of the Gulf of Georgia, there are at present no fewer than 1390

persons prosecuting agricultural pursuits upon their own farms, about ten per cent. of which is in hand. They comprise nearly one-third of the entire farming community of the Province. Most of the land occupied by them has been selected for the sake of the "bottom-lands" which form a not inconsiderable part of each pre-emption. This class of land, besides being the most fertile, is also the easiest to clear, and always forms the nucleus of every well-chosen farm. The alder and other small trees which chiefly favour these situations, are soon cut down and their stumps left to rot. In two or three years they are grubbed up without much difficulty, and the land is in fair condition for the plough. Meanwhile the settler has already started his garden patch, and has good crops of onions, tomatoes, potatoes and other vegetables, with perhaps a little grain growing on a few acres of favourably situated bottom-land which he has cleared before the rest. From this time he is well occupied in improving and cultivating his clearing, gradually extending his borders up the sides of the more elevated ground which slopes back from his house and patch. The larger pine and cedar stumps he cannot get rid of without excessive labour or expenditure. He therefore seeds in between them with rye, timothy and other suitable grasses, cutting the young fern as soon as it comes up in the spring. He runs his small stock of cattle and sheep on the underbrush of the surrounding forests, upon which, with a little extra feed they can do well through the summer. His best land is cold and wet and stands in need of draining; tiles of good quality are manufactured in Victoria, and to be had at reasonable price. During the winter, when opportunity serves, he saws and splits into cordwood the trees he has cut down in the course of his clearing. This, if he is within reach of town, he carts in and disposes of; or on the small islands, he sells to the passing steamboats.

It will be seen that circumstances here greatly favour the prosecution of *small farming*. The quality of the farms is so mixed, the bush is so dense, and there are so many intervening valleys and ridges that the extensive operations of the large farmer would demand an outlay of capital which the area of his cultivatable land would hardly justify. On the other hand, the



CARIBOO DISTRICT.
UNSURVEYED LANDS IN THE BUCKLEY R. VALLEY.

demand for every kind of dairy produce and vegetables makes the labour of the small cultivator very remunerative, and the comparatively limited extent of suitable land will always render high cultivation profitable. When a man can, besides making a good living, bring the value of his land up from \$20 or \$30 per acre to \$100 or \$150—which latter would certainly not be an excessive price for really highly worked farms—there is every inducement to careful cultivation.

The following table shows the distribution of occupied farm lands upon the island :

District.	Farms occupied.	Prop'n cultivated.
Victoria	145	50 per cent.
Lake	65	20 "
Saanich	135	25 "
Metchosin	110	20 "
Sooke	65	10 "
Shawnigan	75	7 "
Cowichan, etc.	185	11 "
Chemainus	35	11 "
Nanaimo, etc	225	7 "
Salt Spring	105	6 "
Islands	75	6 "
Comox	125	7 "
Rupert	25	" "
Alberni	75	5 "
	1435	Average 14%

Unsurveyed Lands. It will not fail to be remarked that reference has been made in the geographical description of the country, to large tracts of good land, which have, nevertheless, no place in the above report of farming progress in the Province. These unsurveyed districts, as the Peace River, the Buckley River and the north Vancouver Island tract, are practically unsettled, and their value for supporting a population wholly untested. Experienced men who have explored these regions for the Dominion and Provincial Governments, have reported most favourably as to their qualifications. But they are too remote from communication with the outward world to render them at present of much account. It is true that even situated as they are, their accessibility is much greater than that of Eastern Canada in the days when it was first colonized, nor would the hardships to be endured by settlers amount to one tithe of what the fathers of

the new world cheerfully submitted to. But with increased advantages, the demand for greater comforts has kept pace, and it is very doubtful whether any considerable population will settle in these northern districts of the interior, before railway communication brings them within easy reach of civilized life. Still, there are the millions of acres of the Peace River lands, a sensible proportion, at least, of which would repay cultivation; there is the broad valley of the Buckley and other streams, which alone is probably capable of maintaining a population equal to that on the Fraser; and there are, without any fear of exaggeration, thousands of suitable patches upon almost every creek and fiord of the coast line, whereon a family might very well be supported in decent comfort, if not in affluence. To pretend that these places are like a paradise, where everything is at hand without struggle or pains to procure a livelihood, would be absurd; nor indeed were that the case would it be any solid recommendation to the country. The position which is maintained is rather this, that the circumstances attending an agricultural life in the Province are like those which once prevailed in England, neither too hard nor too easy, and that they tend to produce a race of men neither worn out with excessive toil, nor effeminate through living an indolent and enervating existence. The first generation of settlers will, of course, always endure the greatest hardships, and they must be prepared for this in return for cheap land and the best choice; the chief point to be determined is one of climate and soil, whether these are of such a character that the conditions of existence are capable of steady and encouraging amelioration, such as to continually evoke the energies and occupy the intelligence of the inhabitants. It is maintained that in no country of the new world will be found conditions better qualified to this end than in British Columbia.

II.

EXPORTING CAPACITY OF THE PROVINCE.

In the foregoing chapter, British Columbia has been represented as by no means a sterile land, but rather it has been shown to possess a sufficiency of agricultural soil upon which to support a large population in comfort. This is not however, what is now-a-days understood as a "farming country." The enormous plains of the interior of North America, the expedition with which their virgin soil may be brought under the plough, and the comparatively little cost of this operation, have greatly changed popular ideas as to the process of farming and as to the normal value of its farm lands to the country which possesses them. For hitherto this value has been regarded in most countries of the old world to consist chiefly in the power of supporting a population, whereas at present, it would seem to lie rather in the power to produce a quantity of grain largely in excess of the need of the inhabitants. Thus it is the exporting capacity of these new agricultural regions which constitutes their wealth. But it is very clear that however productive they may be for years to come, this is no stable equivalent to those other resources which enable a country to assume importance as an exporter of goods. Any community which develops facilities whereby it can rise from the position of exporting raw materials to that of exchanging its manufactured products, has made as great an advance in economic importance as one which has passed from the pastoral to the agricultural stage. If this fact were not sufficiently recognised among the nations, nothing would be heard of Protection, or the encouragement of manufactures by the State.

In the following chapter it is purposed to briefly review not only such resources as this Province may possess for engaging in the export of her raw materials, but also her capabilities for establishing manufactures on a permanent basis when the time comes in which she may do this with profit. It will be shown,

that while she has command of vast quantities of timber and minerals, including the precious metals, to barter with other countries in their raw state, she has also ready to hand all those means which will one day enable her to engage economically and profitably in manufacture. It may seem to many that a long time must elapse before the rate of wages will have reached such a point as to render manufacturing possible, but we have sufficient evidence in the past fifty years of development on the American continent, to show that since the introduction of labour-saving machinery, this question of wages is no such serious obstacle as it at first sight would appear, and indeed it is significant that whereas ten years ago British Columbia occupied the fourth place among the Provinces of Canada as a manufacturer, in proportion to population, she now heads the list. But even were it a question of prolonged waiting before such facilities could be profitably employed, the fact of possessing them places the country in a position of great advantage as compared with those which have no such future before them. In the former case, there are the means to attain to the utmost point to which civilization can reach, in the latter a stage will surely and certainly approach at which development will be arrested and progress no longer possible.

The present exports of the Province of sufficient importance to demand attention are minerals, lumber, fish and furs. These will be treated of respectively, though it is clearly beyond the scope of this work to do more than refer to them in a very general and superficial manner.

MINERALS.

The presence of extensive mineral deposits has long since been proved an essential to the progress of any country. Although it is said with perfect truth that the products of the soil alone are capable of supporting life, it is nevertheless a fact that a purely agricultural people rarely attains to any high degree of wealth and importance. The more rapid accumulation of capital which follows upon the successful mining of the precious metals and the stimulus given to manufacture by the discovery of coal and iron has always created a denser population and

more widely distributed wealth, together with a rapid increase in material comforts and encouragement of the arts.

The great mountain group, which in successive ranges borders the western side of the American continent, has been in every portion of its entire length demonstrated to be rich in mineral deposits, nor is that section which traverses the length of British Columbia any exception to the rule. Her mineral wealth is indeed phenomenal. To it is owed the first prominence to which the country attained; it at the present time supplies the chief export, and upon it depends in no small degree all future prosperity. The gold placers were for long the chief attraction which drew strangers to her shores; the coal fields of Vancouver Island are her most valued source of revenue; the quartz mines of Kootenay and the Interior are the legitimate successors to the placers of an earlier period of her history; the iron ores of the coast will secure her position among the manufacturing countries of the future.

A more detailed though necessarily imperfect account of these discoveries may now be entered upon.

The principal metalliferous regions of British Columbia, which extend laterally from the western slopes of the Rocky Mountains to the coast, and include the Selkirk, Purcell, Gold and Cariboo Mountains, the Interior Plateau, and the Coast ranges, correspond roughly with the regions of the Cœur d'Alene and Bitter Root Mountains of Idaho and Montana, the Great Basin of Utah and Nevada, and the western slopes of the Sierra Nevada. Through these regions belts, more or less defined, occur containing valuable deposits of the base and precious metals, of which those in Cariboo—gold gravel and quartz; in the Selkirks—argentiferous galena, copper and associated ores; in the Nicola—gold and silver sulphurets; and in the canyon of the Fraser, gold gravels—have been so far the most prospected.

“ Everything which has been ascertained of the geological character of the Province, as a whole, tends to the belief that so soon as similar means of travel and transport shall be extended to what are still the more inaccessible districts, these also will be discovered to be equally rich in minerals, particu-

"larly in the precious metals, gold and silver."—*Dawson's "Mineral Wealth," p. 15.*

Gold. Gold was first discovered in any considerable quantity in British Columbia in 1848 upon Queen Charlotte Island. Although large nuggets were at first obtained from a reef close to the waters' edge, this was soon found to dip into the sea, and after various disasters the enterprise was abandoned, some \$20,000 of gold having been extracted.

In 1858 the great gold discoveries of the Fraser were made, and in the first two years several million dollars' worth of the precious metal was obtained from that source. A few years later, as the stream of mining prospectors penetrated further into the country, the Cariboo, Omineca and Cassiar regions were respectively opened out. Subsequently small local discoveries have been made in various districts, and almost every year fresh sources of the gold supply come to light. Altogether about \$54,000,000 have been taken from the mines, the annual output having steadily fallen for some years, till it at present amounts to only \$400,000.

It is, however, confidently anticipated that this will be about the lowest point reached, for the period when, as in California, the labours of the individual placer miner should be succeeded by hydraulic mining on a large scale, appears to have come at last.

The Minister of Mines in his latest report states that the applications for mining leases of bench lands during the past year have been more numerous than at any former period, and that it is anticipated the output of gold for 1893 will be considerably enhanced by the hydraulic companies operating in the Yale, Lillooet and Cariboo Districts.

In the last mentioned locality in which, as is elsewhere stated, was once the richest placer ground known, for many years past the miners have been contending against the almost insuperable difficulties of transit. The enormous cost of conveying machinery and supplies to the mines has precluded anything approaching that development which might otherwise have been

expected. Nevertheless, half of the entire gold crop of 1892 was obtained from this source, and great efforts are being made to establish hydraulic and quartz mines on a scale which will do justice to the undoubted resources of the district.

The following shows the proportionate production throughout the Cariboo District in 1892 :

Barkerville.....	\$ 76,600
Lightning Creek.....	41,500
Quesnellemouth.....	23,500
Keithley Creek.....	52,400
Estimated balance (Nov. 15 to Dec. 31).....	10,060
	<hr/> \$204,000

In the appendix will be found an exhaustive and interesting account of the progress of gold mining in the Province in a paper read by Prof. G. M. Dawson, C.M.G., F.R.S., before the Royal Colonial Institute, March 14, 1893, and which it is hardly necessary to say treats the subject in a manner far beyond the capacity of the writer of this essay. It would therefore be superfluous to further refer to it here.

Mining Development in the Kootenays. As early as the year 1865 the great bend of the Columbia River which forms the Northern boundary of Kootenay, was prospected for gold by miners from the Fraser and Thompson Rivers, eastward across the Shuswap Lake. The journey was an arduous and expensive one, notwithstanding which, after hearing of the success of the first explorers, the rush was very great. From the small streams and creeks flowing into the southward turn of the river several million dollars worth of the precious metal was washed, and the miners entertained sanguine hopes that here would be found a sufficiency to enrich all who ventured into that difficult country. Their expectations, were however, not realized, the majority enduring many hardships with small financial results, and the region was soon deserted by all save a few pertinacious men. But already others had entered the Southern Kootenay from across the Boundary line (1864), and had prospected with great success the rich placers to be found in the streams which flow into the Kootenay river. Of these the Wild Horse Creek (*see illust. p. 13*) and Perry Creek were the most famous, from the

former of which alone some \$10,000,000 was obtained. The history of these placer claims in the Upper Columbia Valley and in the Big Bend may be said to form the first chapter in the mining development of East and West Kootenay.

A second stimulus to such enterprises was given by the construction of the Canadian Pacific Railway across the Selkirks. During that work good specimens of argentiferous galena were met with in the neighbourhood of the Illicilliwaet, a glacial torrent which discharges into the Columbia near Revelstoke, and more attention than usual was paid to such discoveries owing to their propinquity to a means of transport. In 1886-7 many claims were taken up on the mountains to the north of the railway track, and a considerable amount of capital and energy was devoted to exploring and developing these mines. Many difficulties were encountered, chiefly owing to legal questions which arose as to the ownership of minerals within the railway belt, (the point was subsequently settled by an appeal to the Privy Council and by legislative action of both Provincial and Dominion Governments), but notwithstanding, some \$25,000 worth of ore was shipped to San Francisco for treatment in 1887-8. This ore averaged 60 oz. of silver and 70 per cent. lead, and the large bodies which were discovered went far towards establishing confidence in the future of the district. On the south side of the railway track the mineralized region was prospected as far as Fish Creek, a stream which flows into the head of the Upper Arrow Lake. Here too, very promising deposits were discovered and to some extent mined. Encouraged by these and similar discoveries, a smelter was erected on the shore of the Columbia near Revelstoke.

The ores of the Illicilliwaet District are chiefly argentiferous galena, running from 40 to 120 ounces silver per ton of 2,000 pounds, and from 40 to 70 per cent. lead. There are also veins of tetrahedite, or grey copper, which run very high in silver—from 200 to 1,000 ounces. Where this latter is found associated with the galena the average of silver in the ore is raised proportionately. The veins occur with a general north-west strike and south-east dip so far as has been ascertained, though there are some strong cross courses, in a country of

black slates and bedded limestones, probably of Cambro-Silurian age. The gangue is chiefly quartz, calc-spar and decomposed earthy matter impregnated with oxides of lead. The slates abound in iron pyrites, and zinc is also found associated with the other ores, though not to any extent detrimental to the easy smelting of the ore.

Meanwhile in a region far to the south, at the foot of Kootenay Lake, a very rich vein of copper associated with silver, had been accidentally discovered by some ranchers who had crossed the mountains in search of stray cattle. This was the now famous Silver King, of the Toad Mountain group, and to its discovery may be attributed the first direction of exploratory work to the shores of Kootenay Lake. Others speedily followed, a vast body of galena was developed on the Blue Bell property on the East shore of the lake; higher up the mountain many silver-lead, tetrahedrite, sulphide, carbonate and similar ores were found in strong veins. Some good gold quartz was also discovered and worked about this time (1888-91). The greatest discoveries, however, must be allotted to the years 1891-92, during the seasons of which the North-west neighbourhood of the lake was further explored with remarkable results. In the Kaslo-Slocan District extensive deposits of very high grade ore were found, and the prospectors finally worked their way through the mountains up to the head of the Upper Arrow Lake and thence up Fish Creek, thus connecting with the earlier discoveries of the Illicilliwaet. In every direction success rewarded their efforts, strong and permanent leads of galena and associated silver ores being found averaging from 150 to 200 ounces of silver per ton. It may be said then that a belt of highly mineralized territory had been demonstrated from a little north of the Boundary line as far as the Big Bend, corresponding in strike with the main axis of the Selkirks.

Some idea of the importance with which these discoveries are regarded by American mining men may be derived from the significant fact that whereas great difficulty has been experienced in enlisting English capital upwards of \$2,000,000 has been already ventured by them upon claims in this district.

It has been estimated that a producing capacity of about 250,000 tons can be easily attained, and although the American tariffs are a serious obstacle to the introduction of these ores into the States, Americans themselves are providing every facility for the cheap transport of the mineral to the Montana smelters. During the past winter over a thousand tons of an estimated value of \$250,000, have been brought down to the warehouses on the edge of the lake to await shipment till the season opens.

Incipient towns have sprung into existence to supply the wants of the miners and afford accommodation for storing and shipping the ores. Steamship and railway facilities are being continually improved so that transportation is being reduced to a practical working point, and a large smelter is being erected upon the lake itself by an American firm.

It is a difficult matter to prophecy, with any hope of accuracy, as to the future of a new mining centre. Discoveries such as the above, lead to a kind of intoxication under which even shrewd and sensible business men see everything in an exaggerated fashion. Mineral veins are proverbially eccentric in their behaviour, and there is, of course, the same possibility here, as elsewhere, of disappointment and failure. It would, however, be, to say the least, an instance of extraordinary ill luck if, out of these numerous well defined and immense out-crops, none should prove permanent on further exploitation, and the opinion of so many competent authorities be disproved in the issue. That some are doomed to disappointment is only to be expected, but if only a very small portion of the mines located be of permanent value great wealth and an industry employing many hands will result to the Province from these discoveries.

Nor has East Kootenay remained far behind the Western district in the development of her ores. In addition to the rich placers which first established her reputation and which are now passing into a second stage of hydraulic mining on a large scale, many quartz prospects have been discovered, and some of these are at present being worked with every promise of good results. A carload of ore from the Vermont Creek recently netted, at the

Tacoma smelter, \$2,060. Upon the Thunder Hill mine, in the neighbourhood of the Upper Columbia Lake, an extensive concentrating plant has been placed and a large quantity of good ore is ready for treatment. Near St. Mary's River an immense deposit of argentiferous galena has been discovered assaying 47.31 ounces of silver per ton, and 67.50 per cent. lead; this is to be actively worked. Other mines and prospects in the same district are referred to in the subjoined table:

ASSAYS FROM EAST KOOTENAY ORES IN 1891.

1891.	LOCALITY.	MINERAL.	ASSAYS TO THE TON (2,000 lbs.)
Sept.	McMurdo creek.....	Quartz.....	Gold \$326.70.
June..	" " " " " " " "	" " " " " " " "	Gold 15.43 oz.
" " " " " " " "	" " " " " " " "	" " " " " " " "	Gold \$546.30.
" " " " " " " "	" " " " " " " "	" " " " " " " "	Gold \$34.35.
" " " " " " " "	" " " " " " " "	Galena.....	Silver 41.45 oz, lead 79 per ct.
July..	Copper " " " " " "	" " " " " " " "	Silver 177.29 oz, lead 74 per ct.
" " " " " " " "	Vermont " " " " " "	" " " " " " " "	Silver 102.9 oz, lead 69 per ct.
" " " " " " " "	" " " " " " " "	Grey copper.....	Silver 1169.33 oz.
" " " " " " " "	" " " " " " " "	" " " " " " " "	Silver 242.39 oz, gold \$5.38.
" " " " " " " "	Vermont creek, average of 18 samples from surface of various leads.....	Galena and antimonial copper.....	Silver 86.01 oz, lead 41.83 per cent.
" " " " " " " "	Crystal creek.....	" " " " " " " "	Silver 50.05 oz.
" " " " " " " "	" " " " " " " "	" " " " " " " "	Silver 1,113 oz.
" " " " " " " "	Bugaboo " " " " " "	" " " " " " " "	Silver 240.66 oz.
" " " " " " " "	" " " " " " " "	" " " " " " " "	Silver 62.97 oz, gold nil.
" " " " " " " "	Jubilee mountain.....	Copper ores.....	Silver 129.91 oz, gold nil.
" " " " " " " "	Howse Pass.....	" " " " " " " "	Copper 12.7 per cent, silver 38.23 oz, gold 19 dwt.
June..	Windermere.....	" " " " " " " "	Lead 46.7 per cent, silver 38.75 oz, gold \$23.
May..	Ottertail.....	" " " " " " " "	Silver 19.25 oz, gold \$3.25, lead 60 per cent
" " " " " " " "	East Kootenay.....	" " " " " " " "	Silver 111.28 oz, gold \$35.15.
" " " " " " " "	" " " " " " " "	" " " " " " " "	Silver 107.79 oz, gold \$1.25.
" " " " " " " "	Northwest of Golden..	Antimonial copper	Silver 72.01 oz, gold \$14.62.
" " " " " " " "	East Kootenay.....	" " " " " " " "	Silver 80 oz, gold \$50.00.
" " " " " " " "	Windermere.....	" " " " " " " "	Silver 43.99 oz, gold \$1.00.
" " " " " " " "	Lost creek.....	" " " " " " " "	Silver 71.16 oz, gold \$40.60.
Nov..	" " " " " " " "	Grey copper.....	Silver 610.58 oz, gold \$7.00.
" " " " " " " "	" " " " " " " "	" " " " " " " "	Silver 800.18 oz, gold \$19.62.
" " " " " " " "	Skookum Chuck.....	Antimonial ore..	Silver 523.52 oz.
" " " " " " " "	Huges Ridge.....	" " " " " " " "	Silver 44.50 oz, gold \$1.00.
" " " " " " " "	Northwest of Donald..	Copper ore.....	Silver 243.05 oz.

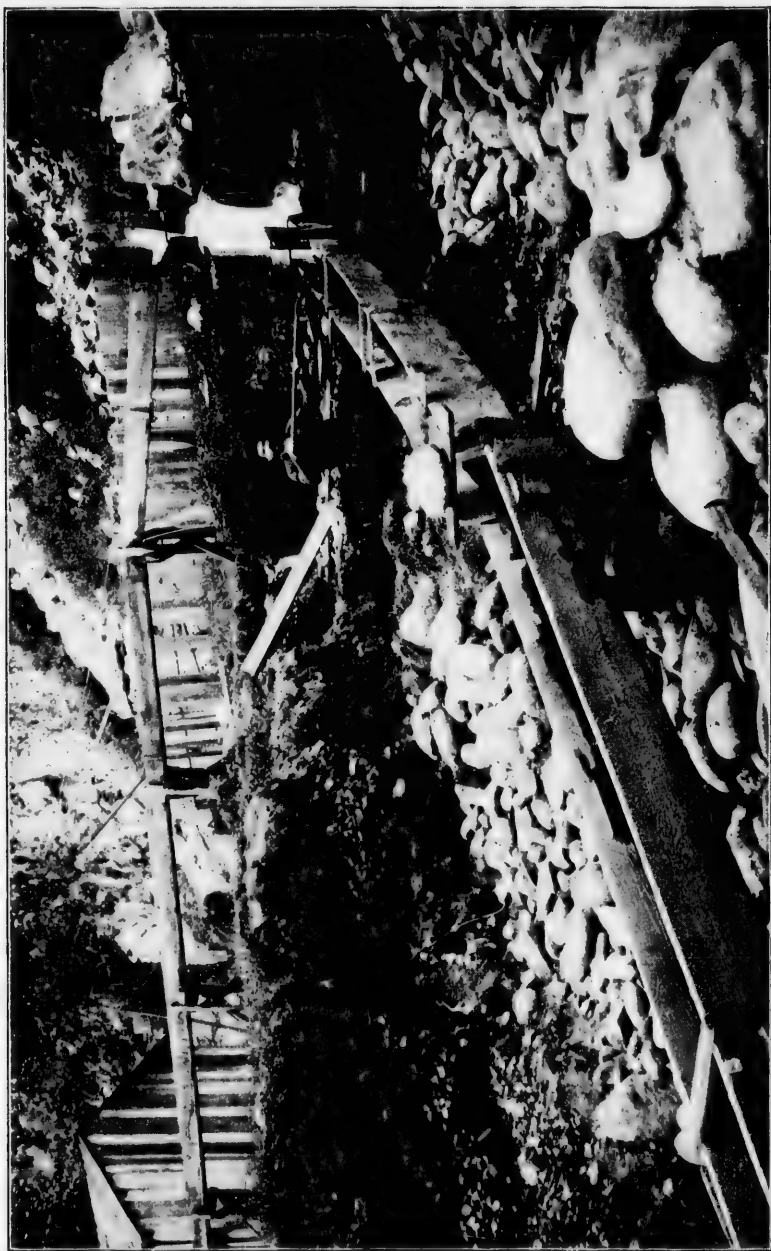
Yale and Lillooet. In these districts, mining for both the precious and base metals is actively prosecuted in many localities. So far as gold washing is concerned, this once productive



YALE DISTRICT.
CHINAMAN WASHING GOLD ON FRASER RIVER.

industry has fallen into decay, the last year's report crediting the two districts with an output of only \$71,000, which is a considerable decrease from former years. This is chiefly attributed to the gradual abandonment of placer-working by the Chinese, who for long have re-worked the well known benches previously gone over by the whites, and which at present are no doubt no longer providing pay ground for this class of mining (*see illust.*) On the other hand, activity in extensive hydraulic operations has only just begun, nor has there yet been sufficient time to see the fruits of these undertakings, but from the large amount of capital which is being expended under the direction of engineers of high repute, and great practical knowledge, there is every reason to anticipate a satisfactory issue.

In quartz mining, a good deal of work is being done not far from the Kootenay district, and of a similar class to that which has already been described in connection with that locality. In the neighbourhood of Boundary Creek, near the boundary line, high grade copper sulphates assaying \$700 in silver and gold to the ton, are being prospected in strong ledges. Numerous claims have been taken up in this section of the district, and upon some of them important development work has been initiated. In the Nicola country no small amount of exploratory work has been done upon veins carrying gold and silver sulphates, though it is reported these ores are somewhat refractory, and have not been hitherto successfully reduced. To the south, on Tulameen and Granite Creeks, platinum has been found in considerable quantities, the output for 1891 amounting to \$10,000. Near Kamloops, extensive deposits of cinnabar, averaging 10.5 per cent. mercury are being prospected, and the nearness of these to railway facilities encourages the hope that they can be profitably mined. It would be impossible to deal exhaustively with the various mining enterprises in this section of the country; nor would it be safe to predict their future, but it is clear that whatever may be the fate of this or that undertaking, there is ample evidence of the existence of innumerable mineral veins and deposits carrying the precious metals in paying quantities, and that with increased facilities of communication, a proportion of these, as great no doubt as in any other country



LILLOOET DISTRICT.
PLACER MINING, WITH BOX-FLUME AND RIFFLES.

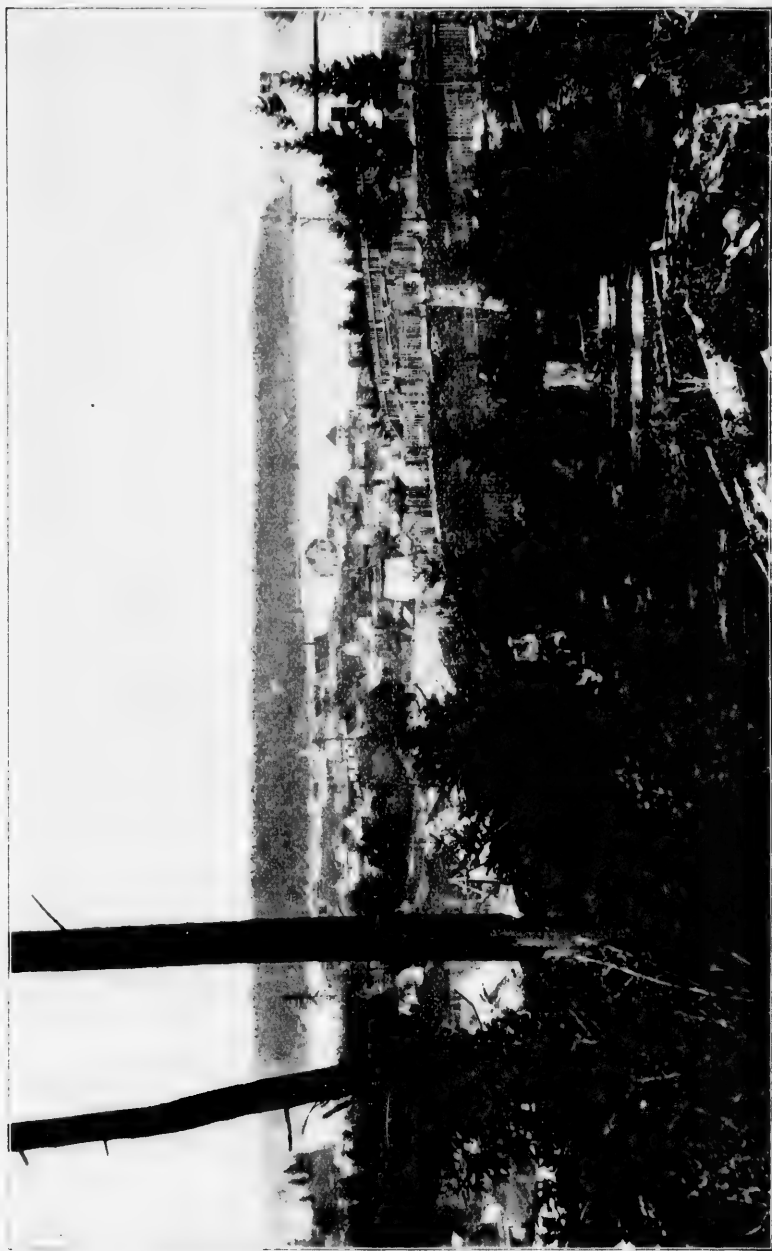
similarly circumstanced, will be made revenue producing. It is greatly to the credit of the Province as a whole, that mining for the precious metals has never become a disreputable occupation, either for the working miner or the capitalist. The camps of British Columbia were known in early times as extraordinarily law-abiding, in marked contrast to the condition of California in the first days of the gold fever, and mining undertakings have been so far kept very free from wilful misrepresentation and fraud.

Coal. The excellence of the coal fields of British Columbia has obtained such wide recognition that it is hardly necessary to refer to them here at any considerable length. In this particular respect, Nature would seem to have dealt in a spirit of partiality, for there are no coal measures known to exist upon the Pacific coast to compare with those which are to be found within the borders of the Province.

Upon Vancouver Island, the Nanaimo and Wellington collieries of the New Vancouver Coal Co. and of Messrs. Dunsmuir & Sons, respectively, and those of the Union mines at Comox, belonging to the latter firm, furnish a quality of coal which is able to hold its own in the San Francisco market against all comers, notwithstanding the heavy duty imposed. The output of these mines has quadrupled in the last ten years, and now amounts to over a million tons per annum, with every prospect of continual increase. The coal is a first-class bituminous coking coal, the seams being from six to ten feet thick. They occur in a late series of rocks of cretaceous formation. The following is a fair average analysis :

Fixed Carbon.....	64.65
Volatile Combustible Matter.....	28.19
Hygroscopic Water.....	1.47
Ash	6.29

The subjoined table is of interest as showing the number of hands actually employed at the present time in these collieries, and the wages which are paid :



NANAIMO, VANCOUVER ISLAND.
CHIEF CENTRE OF THE COAL INDUSTRY. VIEW FROM S. W.

BRITISH COLUMBIA.

55

1802.

	Output.		No. OF HANDS.				WAGES PER DAY.				
	White.	Boys.	Chinamen.	Total.	Whites.	Boys.	Chinamen	Average Miners' Earnings per day.			
Nanaimo.....	433,386	1159	43	165 1367	\$2.50 to \$3.50	\$1 to \$2	\$1 to \$1.25	\$3.00 to \$5.00			
Wellington	290,370	682	33	100 815	2.50 to 3.50	1 to 2	1 to 1.50	3.00 to 4.50			
E. Wellington..	33,650	118	16	18 152	2.50 to 3.50	1 to 2	1 to 1.50	3.00 to 5.00			
Comox	68,928	250	..	200 520	2.50 to 3.50	1 to 1.50	3.00 to 5.00			
				170							
	826,335	2209	92	553 2854							

* The output last year was reduced on account of the temporary depression of the market.
† Japanese.

As an impartial estimate showing the superiority of the Vancouver Island coals, the following table establishes the comparative value of these and other fuels for steam-raising purposes, as found by the War Department of the United States.

One cord (8 feet by 4 feet by 4 feet) of merchantable oak wood is there said to be equal to :

Nanaimo Coal (Vancouver Island).....	1800 pounds.
Bellingham Bay Coal (Washington).....	2200 "
Seattle Coal (Washington).....	2400 "
Rocky Mountain Coal (Wyoming, etc).....	2500 "
Coos Bay Coal (Oregon).....	2600 "
Monte Diablo Coal (California).....	2600 "

The following statement of the weights of steam, obtained as the result of working tests from a cubic foot each of various fuels, at a slow rate of combustion, may also be referred to. The water to be evaporated had first been raised to a temperature of 212° F. The experiments were made by the Chief Engineer of the U. S. navy yard at Mare Island :

	Pounds of Steam.
Nanaimo Coal.....	372.64
Rocky Mountain, Monte Diablo, Coos Bay and Seattle	319.98

Nicola. In the Nicola Valley, not far south of the C. P. R., a valuable coal seam has been worked in a small way for some years. Occurring, as it does, in conjunction with a first rate iron ore, (58.5 per cent. metallic iron) and in a very accessible country it will, no doubt, be soon put to more practical use. It is found in the outcrop dipping below tertiary sandstones at an angle of about ten degrees, is six feet in thickness, and is composed of good bituminous coal of fine coking quality.

ANALYSIS.

Fixed Carbon.....	61.290
Volatile Combustible Matter	36.065
Ash	2.465
Yields in Coke.	63.25 per cent.

Crow's Nest. A most phenomenal discovery of coal has been made in the Crow's Nest Pass of the Rocky Mountains. Here no less than twenty seams are seen to outcrop with a total thickness of from 132 feet to 148 feet.

The upper ten of these seams are of a cannel coal having an aggregate thickness of 38 feet, of similar quality to the "Boghead" coal of Scotland, very rich in disposable hydrogen, and yielding 40.19 per cent. of firm lustrous coke.

ANALYSIS.

Fixed Carbon	39.33
Volatile Combustible Matter	57.71
Ash.....	9.86

"The above analysis, by fast coking, tends to show that this material constitutes an excellent "gas-coal," not only by reason of the large amount of volatile combustible matter it is capable of affording—in which respect it is superior to a very large number of cannel coals which are employed for gas making—but also from the fact that these would appear to be of superior quality for illuminating purposes. As may be seen, this coal yields 57.71 per cent. volatile combustible matter, whereas the celebrated Youghiogeny coal (Pennsylvania) and which is regarded as a very superior gas-coal, yields, according to Professor Peter, but 35 per cent."—(*G. C. M. Hoffman.*)

Of the lower seams two are respectively 15 feet and 30 feet in thickness, and are very superior bituminous coal even as compared with those of Vancouver Island.

ANALYSIS.

Peter, 15 feet.		Jubilee, 30 feet.	
Carbon	80.51	Carbon.....	80.04
Ash.....	3.62	Ash.....	4.37

The following report on the quality of these coals has been made by Dr. Hoffman, Chemist and Mineralogist to the Dominion Survey :

“ On glancing over the foregoing results, it will be observed that these coals are, in all respects, very much alike in physical character and chemical composition. They closely resemble some varieties of coal in the carboniferous, though really of the cretaceous age. They do not disintegrate on exposure to the air, are firm, and apparently possessed of sufficient tenacity in the lump to bear the abrasion incident to transportation without serious waste by reduction to fine material. They contain but a small percentage of ash, and that of such a comparatively fusible nature that it is highly improbable that it would be likely to incrust and stick to the furnace bars under the form of slag and clinkers, and thereby exclude the passage of the air needed for combustion, and so lower the temperature of the furnace. Hence, both in regard to the amount and nature of the ash, these coals are exceedingly well adapted for generating steam. The percentage of sulphur is likewise very small—a most important consideration, and highly favorable to their employment for technical and domestic uses, inasmuch as the presence of any very appreciable amount of this element in a fuel is detrimental in any metallurgical operations, and equally so in the manufacture of illuminating gas. By fast coking they comport themselves like true coking coals, affording good, firm, coherent cokes, hence, when employed for gas making, the resulting “gas coke” would prove a good fuel for domestic use, for burning in steam boiler furnaces, or in any place where it would not be subject to any considerable pressure. The quality of coke depends not only upon the nature of the coal from which it is derived, but also upon the manner in which the process of

coking is conducted, that remaining after the distillation of coal in retorts, for the purpose of obtaining illuminating gas, is not so hard, is more easily ignited, and burns with a draught less intense than that made in coke ovens. The calorific power of these coals leave nothing to be desired. Briefly These coals constitute excellent and valuable fuels for raising steam; are admirably suited for many metallurgical operations; well adapted for the manufacture of illuminating gas, and may be used with advantage for household purposes."

In steam generating quality as compared with the best Vancouver coal these two seams return the following test:

	Calories.	Weight of Water at 100° C Evapor- ated by 1 lb of Coal.
Peter	8050	14.99
Jubilee	8026	14.99
V. Coal	7224	13.41

The area of the beds has been calculated by Professor Selwyn (Dom. Geol. Dept.), as at least 144 square miles. Occurring in such close proximity to the mineral discoveries of Kootenay and upon the very line of proposed railway communication with them, their value cannot be exaggerated. They will, in fact, place the Interior in the same position of supremacy, as regards fuel, as the mines of Vancouver Island have placed the Coast.

The coal measures of British Columbia have not been exhausted by reference to the above. In many other places anthracite bituminous coal and lignites of fair quality are known to exist, the first of these notably on Queen Charlotte Island. But sufficient has been said to show how entirely independent is the Province in the matter of fuel, and how large her exports of this class may become when the countries of the Pacific seaboard have begun freely to interchange products with one another.

Iron. Had the Province a sufficient population to create a demand for the manufacture of iron and steel on a large scale, there is no doubt that the ores to be found throughout the country would have received more attention. As it is, their

excellence has been borne witness to by competent authorities on the subject. In the report upon iron ores issued by the Iron and Steel Institute of England in connection with the Colonial Exhibition, a very prominent position was assigned to these ores, and a large portion of the entire work devoted to their analysis. As regards quality many of them compare with the best known deposits of the world; in quantity they are practically inexhaustible.

They are, for the most part, magnetic ores, though hematites have been found both in association with these and as separate deposits. Clay ironstone is found in the neighbourhood of some of the coal measures of tertiary formation, some of this is of sufficient value to be one day worked.

The principal, indeed the only ore which has been actually worked as a commercial undertaking, is found on Texada, an island in the centre of the Gulf of Georgia, lying N.E. from Nanaimo. Here, for some time past, a good magnetic iron has been obtained and smelted by an American company at Port Townsend. The quantity used has hitherto been quite insignificant, amounting to 10,000 tons yearly. It yields 69 per cent. of metallic iron with from .005 to .01 of phosphorus and about the same percentage of sulphur. The ore is found in lenticular masses about twenty-five feet thick, in a contact of limestone and granite and is apparently very abundant.

At Sooke, on the southern extremity of Vancouver Island, a similar ore occurs in great quantities, the proportion of metallic iron and phosphorus being about the same, but the ore is more refractory from admixture of pyrites. A small vein of hard hematite is associated with this ore but its value has not been practically ascertained.

Further north, ores of superior quality to either of the above are met with in abundance, Rivers Inlet, Knights Inlet, Calvert Island, King Island, *Redonda Island, Guilford Island, and other small islands being the localities of their known occurrence. These deposits all appear to present the same general

* A Company operating mines in this Island, have recently entered into a contract with a Portland firm to supply 10,000 tons per annum (1893).

features and have always, so far, been found as contact segregations between granite and limestone.

Inferior ores again to these, have been discovered upon Queen Charlotte Islands and on Barclay Sound.

In the Interior, iron stone of equal quality to that of Texada is found at Kamloops and in the Nicola. Further north the chief known situations of its occurrence are the upper branches of the Naas River, Tatla Lake and the Finlay, Parsnip and Canoe Rivers. Some of these places are, of course, too remote to attach any great importance to at present. It is, however, clear that whenever circumstances should demand the local production of iron, a supply more than sufficient is at hand.

LUMBER.

The present state of the lumber trade in British Columbia cannot be regarded with entire satisfaction when the exceptional facilities which exist for its prosecution are taken into consideration. It is true that in the last twenty years the annual value of lumber exported has doubled, and that again more than double this quantity is milled, the balance being consumed in the Province or throughout the Dominion. The most recent statistics give an annual output from the mills of 83,107,335 feet, with a total value of \$997,287 distributed over forty-six mills. But this output does not compare favorably with that of the neighbouring State of Washington, whence is shipped nine times as much lumber as that from the Province, although the timber of the latter is quoted in the market as ten per cent. better in quality and the facilities for handling it are in no respect inferior. It is trusted, however, that this state of things will be remedied as soon as communication with Australia is improved and the trade better established. In 1890 300,000,000 feet was exported from the North Pacific Coast to Australia, only 15,000,000 feet of which found its way from the Province. It will be seen then that in this item alone there is much room for future development.

But in attempting to arrive at a just estimate of what the total volume of the lumber trade may become on this coast, the



NEW WESTMINSTER DISTRICT.
SHIPS LOADING LUMBER AT MOODYVILLE, BURRARD INLET.

present annual production of the Atlantic Provinces and of the forest States of the Union must be taken into consideration. For, no matter how low may be the price paid, or how depressed the industry from a commercial point of view, it is perfectly clear that any failure in the future to supply this annual quantity will have to be made good, in a great measure, from other sources.

Now, according to the latest returns, about thirteen hundred million feet of lumber is cut in the whole of Canada annually. Of this only about seventy-nine million feet is credited to this Province, leaving a balance of over twelve hundred million feet for the rest of the Dominion. But it is acknowledged by all authorities that the supply both in the timber regions of Eastern Canada and the United States, is failing, that to obtain it lumbermen are obliged to penetrate farther and farther back from navigable waters, proportionately increasing the cost of freight, and that the size of the trees cut is already reduced to the minimum compatible with the purposes of milling. On the other hand, the timber of the Pacific Coast is enormous in size, inexhaustible in quantity, and very favorably situated as regards handling. It is evident then that while the one trade will continually decrease the other will proportionately expand, until the present statistics are reversed and this Province will be cutting ten to fifteen times the present quantity of its timber to supply the deficiencies of Eastern production. Thus, without reckoning for shipments on the Pacific Coast, whether to South America, Australia or China, the assured increase in the future volume of trade must be very large.

The chief seat of the industry as it now exists, is New Westminster District, twenty-eight of the forty-six mills running, with a daily capacity of 1,268,000 feet, four-fifths of the total, being situated within that District. Of the remainder Vancouver Island has eight mills with a daily capacity of 224,000 feet. There are two mills in Yale District, five in Kootenay, two in Cariboo and one in Cassiar. The large proportion produced on the coast is a fair indication of its relatively greater importance as regards this industry.

Douglas Fir. By far the largest proportion of lumber (about eighty-five per cent. of the whole), is obtained from the Douglas



NEW WESTMINSTER DISTRICT.
HURD INLET ROAD, SHOWING THE GROWTH OF DOUGLAS FIR.

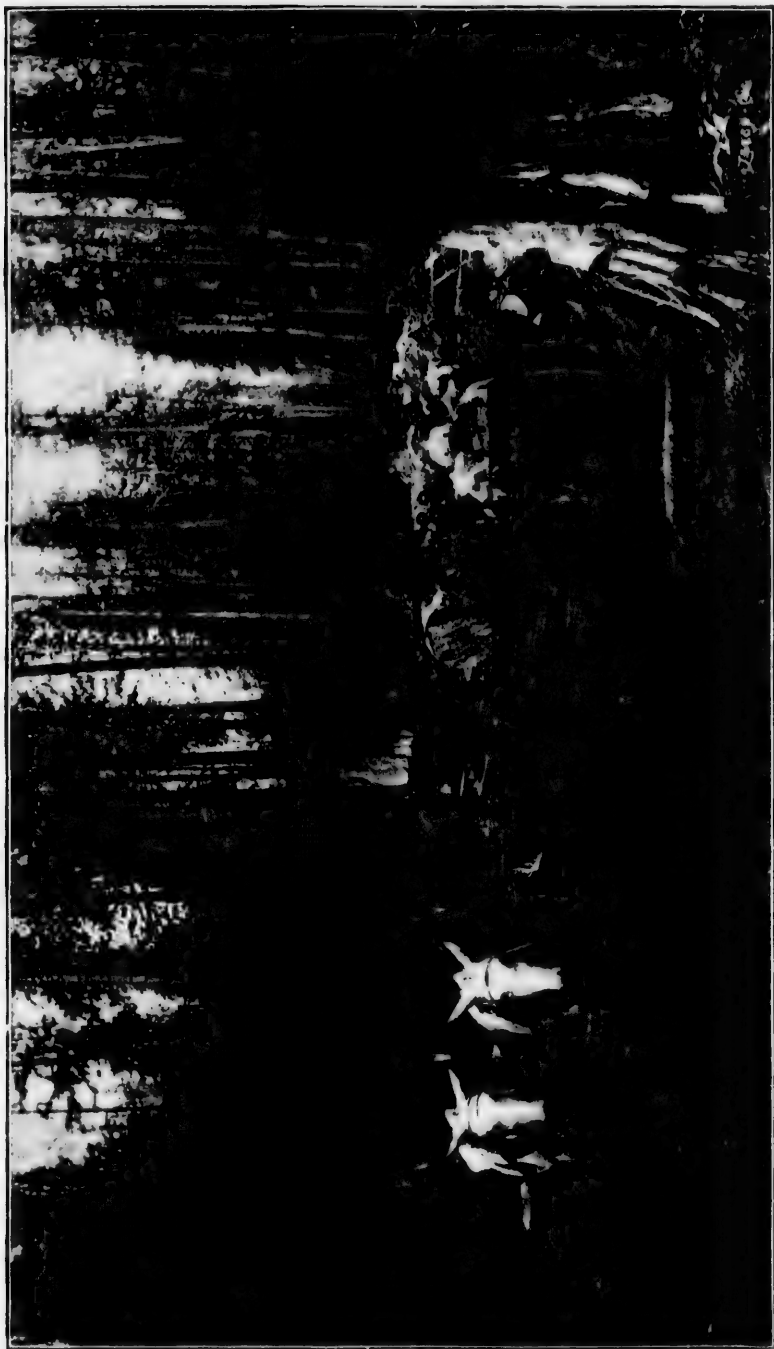
fir. This tree, the density of whose growth is one of the most remarkable features of the Coast, attains a height of over 300 feet with a circumference of from 25 to 50 feet in fine specimens. Upon timber limits favorably situated, the number of well developed trees growing to the acre is very astonishing. A prominent firm of loggers cut and measured *508,000 feet* of timber off one acre in the Comox District. When the writer of the present work first published this statement, upon unimpeachable testimony, it was evidently regarded as so improbable that it became a matter of no small amusement to him to see how, in subsequent papers on the subject, the figures were accommodated to within more reasonable limits! The statement is here repeated that future writers may know it was neither a printer's error nor a mere exaggeration.

"Whereas in the Eastern lumbering districts of Canada and the United States, the timber limits average from 9,000 to 15,000 feet per acre, on the Island of Vancouver and the Mainland coast they run from 20,000 to 500,000 feet, and a very moderate estimate would be 30,000 feet per acre. Under 20,000 per acre, a timber limit would scarcely be considered worth acquiring."

The best trees average about 160 feet clear, to the first limb, and are from five to six feet through at the butt. They are cut about four feet from the ground. Douglas fir is essentially a building material, and as such is very widely known and appreciated in the lumber trade. It also supplies the finest spars to be obtained.

Cedar. The cedar, which exceeds in picturesque grandeur every other tree in the Province, attains to a girth greater even than that of the Douglas fir. Specimens have been measured from 60 to 80 feet in circumference several feet above the ground, their wide-spreading roots greatly increasing the area which they occupy. All cedars of any considerable size and age decay at the heart, and this decay gradually spreads until a mere shell is left supporting an apparently vigorous tree.

The wood of the cedar is employed chiefly for fine dressed lumber, doors, frames, sashes, etc. The veining is very beauti-



COWICHAN LAKE, VANCOUVER I.
HAULING LOGS TO THE SHORE OF THE LAKE.

ful, which renders it well adapted for all interior work, and it is now being extensively used in Eastern Canada and the United States for that purpose. Cedar posts and rails are also in great request, as they are of all woods the most durable and least affected by weather, requiring no paint and remaining for years, even in damp situations, without rotting.

The great majority of the trees in the Province are conifers, the only important exceptions being oaks, maples, poplars and alders. Commercially none of these can be considered of anything approaching the value of the cedars and firs, though they are somewhat extensively employed, locally, for various purposes.

Timber limits, or forest areas suited to the requirements of the lumberman, are leased from the Government at a low price per acre, under conditions of actively working them. Ten cents per acre per annum is charged. Fifty cents per thousand feet cut, with a rebate of 25 cents per M exported out of the Province, is the royalty. Each mill is allowed to lease limits up to 400 acres per M per diem, producing capacity. Thus a mill sawing 20,000 feet a day might lease 8,000 acres, at a rent of \$800, paying \$10 a day royalty, or \$5 if the gross output were exported.

THE FISHERIES.

The development of the marine industries of the Province, viz.: Seal hunting, salmon canning, and deep sea and coast fishing, is a satisfactory indication both of the enterprise of her capitalists and of the determination towards her shores of a sea-faring class of emigrants. The great value of such a class in establishing her maritime importance, has been already referred to, nor can it easily be over-estimated. Although the advisability of subsidising the Scotch crofters may be open to question and can only be justified by the emigrants proving themselves to be industrious, energetic and fairly intelligent, there can be no doubt that the voluntary immigration of hardy sea-going men like the Newfoundland and Nova Scotian fishermen, promises to be as beneficial to the country as it is to themselves. It is therefore gratifying to observe the steady increase of such

a class, and permanent advantage may be anticipated from their presence.

Every year witnesses the growth of the local fleets, and the increase in the gross tonnage of vessels entering the harbours of the Province is not more satisfactory than the increase in her number of sail. Notwithstanding the extreme discouragement suffered of recent years in the sealing industry from prolonged International disputes about the Behring Sea, the sealing fleet has doubled in number and trebled her total crew in the last three years, over fifteen hundred men and sixty-nine vessels being at present engaged in this industry. Last year's catch reached a total of sixty-two thousand seals.

Salmon. Salmon canning has suffered of recent years from an ill-regulated market, but this condition can only be one of temporary inconvenience. The total revenue from this source during the past year amounted to \$2,351,083 derived from a pack of 314,893 cases. The present year, which is anticipated to be the season of the "great run," is expected to yield a much larger harvest.

The salmon canning industry is prosecuted at all those points along the coast at which the fish congregate in sufficient numbers to render their capture on a wholesale scale profitable. These are at present, so far as is known, confined to eight or ten localities, and are necessarily at or near the mouths of those rivers or fiords which the fish enter from the sea in their journey to the spawning grounds. The principal are, the Fraser River, in the lower reaches of which there are seventeen canneries; the Skeena River, where there are seven; the Naas River, Rivers Inlet, Lowe Inlet, Gardiner Inlet and Bute Inlet, all on the Mainland, and Alert Bay on the Island of Vancouver.

The salmon of British Columbia has acquired, perhaps, the widest reputation of any product of the Province.

Canned salmon, indeed, may be considered at present the best advertising medium of the country, for it penetrates into regions where the source of its origin is otherwise wholly unknown. Unfortunately, mankind in general are so little curious

as to the source of their food supplies, that probably not one in every hundred of those who consume canned salmon, troubles to enquire whence or how that delicacy is obtained.

It is difficult to persuade those who have never witnessed the sight, of the existence of a river swarming at certain periods with large fish, which may be plainly watched, excitedly jostling their way past every obstruction until the last survivors of the struggle are to be found in remote streams five or six hundred miles from the sea, haggard and worn, bright scarlet in colour, their scales scraped off against rock and gravel, but still in sufficient numbers to almost fill the waters, and to become the parents of other countless myriads which, in their turn, will one day repeat the scene. Year by year, at stated seasons, this sight presents itself to travellers on the Canadian Pacific Railway. It is the great salmon run of the Fraser River, and is duplicated on every river and stream of the coast of British Columbia.

There are three principal migrations each year of these remarkable fish: the winter and spring run of "tyhee" salmon, the summer run of the "sockeye," and the autumn run of the "coho" varieties.

The Tyhee, or spring salmon, (*Oncorhynchus Chouicha*), is the finest, of a flavour and delicacy almost equal to the best Scotch fish.

The Tyhee runs in all the larger rivers of the Province from between November and March. It varies in size from a two-pound grilse to an eighty-pound salmon. Twenty or thirty pounds is a fair ordinary size.

The Sockeye (*O. Nerka*), which is not quite so choice a fish as the former, is, nevertheless, the commercial salmon of the coast. It is a fine, dark-fleshed fish, averaging from five to fourteen pounds, of good flavour, though rather dryer and less rich in curd than the Tyhee.

It runs through July and August, upon the Fraser, the Skeena, and many other streams, but is much more local in its distribution than the first named fish, and is said never to be



NEW WESTMINSTER DISTRICT. CANNERIES ON FRASER RIVER.

BOATS ENGAGED IN THE MORNING HAUL.

found in a river which does not issue from a lake. The prodigious numbers of the Sockeye in a good run on the Fraser cannot be estimated.

The mouth and lower reaches of the river during the run present an appearance of great activity. Early in the morning hundreds of boats may be seen drawing in the nets (*see illust.*) and bringing loads of bright silver salmon to the cannery wharves. There they are tossed up, caught and counted, and rapidly passed into the factory, where, in an incredibly short time, their heads and tails are cut off, they are opened, cleaned, tinned and steamed by a large staff, chiefly composed of Indian women and Chinese. Consumers need have no reason to fear from this fact that the process is an unclean one, for the most scrupulously prepared dishes of their own table are not more carefully cooked. No fish from the market is a shorter time out of water before it goes to the pot, nor receives a more perfect cleansing than is given to these.

The third variety, (*O. Kitsuch*), is found in all streams in September, and is in no way inferior to the Sockeye.

It is followed in turn by the hooknose, and in some localities the humpback, but these have no commercial value, and are rarely eaten except by the Indians.

The most valuable commercial fish, next to salmon, is undoubtedly, at present, the dog fish, of which there are two one (*Squalus Acanthus*), about three feet in length, and one locally known as the *Tope* shark, which averages about six feet.

Their value consists in the excellent lubricating oil which they yield, and which is extensively used throughout the Province and the interior of Canada. The high tariff practically excludes it from the States, where a mineral oil is chiefly employed for the same purpose.

Of the food fishes of British Columbia the variety is so great as to exclude particular mention. Among them may be mentioned the Skil, commonly called the black cod (Queen Charlotte Islands), a very fine large deep-water fish, which

weighs up to twenty or thirty pounds, and is beginning to come into favour as a salt fish of delicate flavour.

The Rock Cod, a good table fish, found on all the coast.

The Red Cod, which is capital baked and stuffed.

The Halibut, very plentiful up to 600 pounds weight ; identical with the British variety.

The Sturgeon, only made use of as a fresh fish ; weighs up to 1,000 pounds, and is good eating.

The Oolachan, a particularly rich little fish of fine flavour.

Anchovy, Capelin, Smelt, Herring, all first-rate pan fishes.

And among Shellfish, the Crab, Prawn, Shrimp, Clam, Cockle, Mussel, and Oyster.

This last of which there is great abundance, is small, but in the writer's and many of his friend's opinions, one of the best oysters in the market, and more choice and delicate than any Eastern variety. In good situations they attain to a plumpness and flavour which is unrivalled except by the best natives.

The peculiar advantages of this Province for the pursuit of fishing industries are not confined to the abundance of fish which may be caught, nor to the excellence of the average quality. The fact which ought, perhaps more than any other to commend itself to fishermen, is the safety and comfort of the occupation upon these inland waters in so temperate a climate, compared with the danger and hardship which he has to face elsewhere.

The islands off the coast of Vancouver Island have numerous little landlocked bays and coves where a boat may ride safely in all weather, and where a fisherman's family, within reach of Victoria or Nanaimo, can live with comfort, cultivating a little farm, the produce from which may be taken off to market with the fish whenever required. The sea will provide as much fishing as can possibly be wanted, and no disastrous storms need be feared to break in upon the happiness of the home.

THE FUR TRADE.

For many years this trade constituted the staple of the country, but it has long since ceased to command the attention of any save those who are personally concerned in it. The reason of this can hardly be ascribed to the failure of the trade or the extinction of fur-bearing animals, there is still a revenue of over a quarter of a million derived from this source; but rather it would appear to be due to the prominence attained by other branches of industry, and to the fact that its manipulation lies in the hands of a very small number of individuals.

It has been asserted that fur-bearing animals are threatened with speedy extinction at the hands of the trapper. The fluctuations of the market which might appear to justify such an opinion, are however, rather to be attributed to the caprice of fashion, and to other temporary influences. All wild animals are subject to very marked variations in number from time to time; this is generally due to disease or failure of food, or to some other destroying agency apart from that of man. Thus, while the trade is liable to spasmodic alteration in prices, the demand and supply being so variable, it would appear probable that there is not likely to be any permanent decrease in the annual harvest of the trapper under existing conditions. The chief fur-bearing animals of the Province and the relative value of their skins in the market are as follows:

Bear, black	\$ 10 00 to \$23 00
" brown	10 00 to 14 00
" grizzly	10 00 to 15 00
Beaver	3 50 to 4 00
Silver Fox	20 00 to 100 00
Cross Fox	3 00 to 7 00
Red Fox	1 35 to 1 50
Sea Otter	100 00 to 300 00
Land Otter	7 00 to 10 00
♦ Lynx	3 00 to 3 50
Wolf	2 00 to 3 00
Wolverine	3 50 to 5 00
Other fur-bearing animals are Marten, Mink, Skunk, Raccoon, Muskrat.	

During 1892 the exports of furs amounted to \$256,321, derived from land animals; \$634,536 from marine animals, including seals.



VANCOUVER CITY, FROM S.
TERMINUS OF C. P. R. AND PORT OF ENTRY OF THE CHINA STRAITS.

III.

THE POSITION OF THE PROVINCE AS REGARDS
FOREIGN COMMERCE.

It is to the maritime importance of British Columbia that we must look for the best evidences of her future greatness. A few years ago, when the project of a trans-continental railway through Dominion Territory was still open to attack, the opponents of that plan used to scoff at the Province as "a sea of mountains" and to deride her ports as the "back door" of Canada. Since that time the trade of the Pacific has been advancing by leaps and bounds, and the harbours of British Columbia have become a factor in the world's commerce which can no longer be ignored.

"Within the space of a short lifetime, the first steamboat discharged her freight on the shores of the British Pacific. Then California was unknown, save as a remote Spanish settlement which had been recently added to the American Territories; and British Columbia was part of a vast wilderness over which a fur trading company held nominal sway, ruling a scattered Indian population by means of a handful of agents in stockaded forts. Now, the freight carried by Pacific coast vessels exceeds 13,000,000 tons annually; California has become the promised land of the American people; the wild territories of Washington and Oregon are wealthy and populous States; and British Columbia is assuming the same maritime position as occupied by Great Britain and the Western countries of Europe, when trade first passed beyond the bounds of the Mediterranean Sea."

When the above was first written, only three years ago, it was considered to approach dangerously near to the border line of "hifalutin," yet in the latest trade returns there is abundant earnest of its realization. While Canada, with its slender population and proportionately huge interior of uncultivated lands, has attained the rank of fourth among marine freight-carrying

States, her "back door" Victoria exceeds in tonnage of vessels entered and cleared, any other port in the Dominion, and the three harbours of Victoria, Vancouver and Nanaimo have already a combined tonnage only one-third less than that of the four principal ports of the Canadian Atlantic. It is not the object of this pamphlet to invest with a fictitious importance these harbours which are in reality in the veriest infancy of their trade, nor to attribute a misleading significance to such somewhat startling statistics. A heavy discount must be allowed for the coast trade between points on the Island and Mainland, but the fact remains that with every deduction the volume of marine trade is a large and increasing one. Such results as have been already attained can be but faint indications of future developments. A steady settlement of the Western States of the Union must go on for many years to come; communication and the exchange of products with Australia and the Orient will continually improve; the exports and imports of the Province itself, and of Eastern Canada through her ports, must increase very considerably, until something like a balance of population and trade on Atlantic and Pacific shores has been arrived at. It would be difficult to estimate the extent to which the commerce of British Columbia will have reached by that time. Situate as it is, the only British possession on the Eastern shores of the Pacific Ocean, and sharing with its next-door neighbours on Puget Sound in the only first-rate harbours north of San Francisco, a very great proportion of the whole volume of possible trade must be transacted through her ports. At the same time she possesses every requirement for the construction of vessels whether of wood or iron, and since so large a number of her inhabitants are drawn from the nautical classes, it will not be surprising if she holds her own, both in the building and manning of ships, against all competitors on this side of the world.

It must not be forgotten that the Dominion holds the quickest route to China and Australia by several hundred miles, which in these days, when so much store is set upon quick transit of goods, is no small advantage; and it would indeed be an extraordinary reversal of all past traditions if British mer-

chants failed to make use of their opportunities or to compete with something like success, against their energetic neighbours in the States. Nay, it may safely be prophecied without disloyalty, that were such a time to come the Crown would no longer maintain possession of facilities which its subjects had proved themselves unable to make use of to advantage. The following tables are illustrative of the foregoing statement :

REGISTERED TONNAGE OF THE FIRST TEN FREIGHT-CARRYING COUNTRIES
OF THE WORLD.

	Vessels.	Tons.
United Kingdom	21,591	7,978,538
Sweden and Norway	11,107	2,116,077
German Empire	3,594	1,320,721
Canada	7,015	1,005,475
United States	1,527	946,606
France	15,194	932,733
Italy	6,721	824,474
Russia	2,983	492,030
Spain	1,608	508,321
Australasia	1,874	350,384

SHIPPING IN BRITISH POSSESSIONS.

	Tonnage.
United Kingdom	74,283,860
Gibraltar	11,488,603
Canada	10,328,285
Hong Kong	9,771,741
Malta	9,162,004
Straits Settlements	8,641,911
India	7,315,586
N. S. Wales	4,761,872
Victoria	4,363,341
South Australia	2,190,442

VESSELS ENTERED AND CLEARED AT CANADIAN PORTS.

Atlantic.	No.	Tons.	Pacific.	No.	Tons.
Montreal	734	1,262,461	Victoria	2034	1,631,200
Halifax	2206	1,234,012	Nanaimo	1051	850,031
St. John	3914	1,146,533	Vancouver	622	560,112
Quebec	724	905,858			
	7578	4,548,964		3707	3,060,308

It will be seen from the above that the marine freight-carrying trade on the Pacific coast already almost equals two-thirds of that on the Atlantic at the above principal ports, and that the proportion of tonnage per ship is nearly 3 to 2, indicating a larger average class of vessels.



ESQUIMALT, VANCOUVER ISLAND.
ROYAL NAVAL STATION, DOCKYARD AND DOMINION DRYDOCK K.

IV. CLIMATE.

Notwithstanding much has been written about the climate of British Columbia, many misconceptions appear to prevail on that subject outside the Province. In some quarters, through confusion with the north-west interior of the Dominion, an impression has been formed that at least to the east of the Coast Range, fearful extremes of cold are to be endured by the inhabitants, while in others, through a misapprehension of the report of travellers, it has been imagined that the climate of the coast resembles that of the shores of the Mediterranean. In order to acquire a reasonable idea of the true state of the case, let anyone first examine upon a map of Europe that portion of land which lies between the same parallels of latitude, and extends over the same area from the Atlantic Coast east, and then consider how far conditions which are known to exist there will be modified by local differences on the Pacific. It will be seen that between lats. 49 59 must be included Great Britain, the North-east corner of France, Belgium, Holland, North Germany, Prussia, Denmark, the South of Sweden, the Baltic Provinces, and the coast of Russia to the Gulf of Finland. This tract of country in area and latitude approximately represents British Columbia, and may be considered as a whole to present almost the same climatic conditions. The differences to be allowed for are as follows: First, the Japan current, the north equatorial current of the Pacific, does not flow so closely to the American coast as the Gulf stream does to the shores of Northern Europe, but admits of a return Arctic current from the north. This Arctic current, which renders the waters of British Columbia extremely cold, causes a condensation of the moisture borne by the prevailing westerly winds eastwards, and produces a humidity most beneficial to the vegetation of the Province. The winds are arrested, in a measure, by the Coast Range, creating a dry belt to the east of those mountains, but the higher currents of air discharge their moisture against the Sel-

kirks, creating the more copious snow-fall which distinguishes that range from its neighbour, the Rockies.

Thus a series of alternate moist and dry belts are formed throughout the Province, which have no parallel on the coast of Europe, where the more broken coast line and absence of lofty mountain ranges, together with the practical non-existence of an Arctic current, tend to distribute the rainfall over the whole area. It will be easily seen how these belts will be broken and modified in places by the varied elevation of the mountains and the presence of passes such as the Fraser canyon.

Again, the decrease in elevation of the Rocky and Selkirk Ranges as they approach to the north, admits a free passage for the winds of the Arctic regions to sweep down over the northern portion of the Province, bringing with them a corresponding reduction in temperature in winter or increase in the summer, when the long Arctic day admits an accumulation of dry hot air over these regions. Since there is open sea to the north of the European continent these conditions exist there only in a modified form, although the Baltic Provinces, Poland, and Prussia experience very similar effects from the N.E. winds.

And lastly, the elevation of the interior plateau is, of course, greatly superior to that of Northern Europe, making an average difference in barometric pressure of some two inches.

The general result of the above differences between the two regions is to accentuate the rainfall on the shores of the Pacific Coast and the extremes of temperature in the interior. Where the latter extends in areas of high elevation, these extremes of temperatures will necessarily be more felt, while in valleys and canyons open to the coast and well protected from the north, a more mild and equable climate will result. At the same time, as there is a greater symmetry in the main features of land and water, the straight coast line and parallel mountain ranges, so the great ocean winds are probably less interfered with by local conditions, and there is a greater regularity of the seasons.

So far as the coast is concerned an increase in rain-fall and general humidity must be expected to the north, where the

Arctic current is colder, the Japan current sweeps nearer to the shore and condensation consequently is greater; the east coast of Vancouver will be less humid than the west, from arrest of moisture by the mountains and forests of the island interior, and the shores of the mainland opposite will be more liable to rain and fog from the low temperature of the waters of the Gulf, which are mainly derived from the cold northern backwash, and from the propinquity of heavily timbered mountainous tracts.

It may be said then that the climate of British Columbia, as a whole, presents all the features which are to be met with in European countries lying within the temperate zone, the cradle of the greatest nations of the world, and is, therefore, a climate well adapted to the development of the human race under the most favourable conditions.

The various local differences alluded to in general terms above, in relation to those causes which produce them, may now be more particularly described.

Kootenay. In the valley of the Columbia (*see illust. next page*) and throughout the Kootenay Districts which correspond, as has been seen, with the mountain belt of the Selkirks, the high average altitude renders the air rarified and bracing, the precipitation of moisture being greater than on the Eastern flank of the Rockies but falling far below that of the coast. Regular meteorological returns have not hitherto been made from stations in this section of the country, but from observations taken by Lieut.-Col. Baker during some year's residence at Cranbrook, in the Upper Columbia Valley, the following data may be depended upon as fairly accurate:

The rainfall averages from eighteen to twenty inches per annum, the lesser amount being experienced in East Kootenay, and the snow attains to a depth of from one to three feet, making a total precipitation of about twenty to twenty-four inches of moisture, according to locality.

The winters extend from December to March, snow not falling, to lie, earlier than the last week in December as a rule. Navigation on the Upper Columbia closes about the beginning



WEST KOOTENAY DISTRICT.
COLUMBIA RIVER, BELOW REVELSTOCK.

of November; on the Arrow Lakes and Lower Columbia not till the end of that month; it opens again about the middle of March. The Kootenay Lake does not freeze over. During the winter the thermometer falls at times considerably below zero, and in summer rises as high as eighty or ninety degrees in the shade, the nights being always comparatively cool. The extreme cold is not severely felt and is of short duration, nor is the summer heat exhausting as in the interior of the continent. Vegetation is rarely affected by drought, and although summer frosts occasionally cause damage in swampy localities, their effects are modified by drainage and cultivation.

The flora of the Selkirks, which differs entirely from that of the Eastern slopes of the Rockies, resembles in many respects that of Europe within the same latitudes. Every kind of wild fruit-bearing bush is found in great profusion; the cedars and other conifers grow densely upon the mountain slopes and attain to a considerable size, though they do not compare with the gigantic dimensions of those to be met with on the coast.

Interior Plateau. Further west, throughout the region of the Interior Plateau, a dryer climate prevails, culminating in the bunch grass country immediately east of the Coast Range (*see illust. next page*). Here luxuriant vegetation is entirely confined to the borders of the lakes and water courses, while the higher benches and round topped hills present the characteristic semi-barren appearance of this class of pasture land. The rain and snow-fall is very moderate, total precipitation averaging from seven to twelve inches according to locality. The winter is confined to eight or ten weeks' frost, when the thermometer falls to zero, and in severe seasons considerably below. The average is not extreme nor are the cold spells protracted. The summers, like those of Kootenay, are warm during the day with cool evenings. As the mean elevation is some 1,500 feet, the air of the Interior Plateau is clear and bracing.

South of the Shuswap Lake, a climate is experienced typical of the milder and more moist conditions which prevail in the wide depressions once formed by glacial lakes, and which may be said to present a mean between the dryness of the true



YALE DISTRICT.

CONFLUENCE OF THE NORTH AND SOUTH THOMPSON RIVERS, NEAR KAMLANDEN.

bunch grass country and the humidity of the coast. The timber is here plentiful but scattered, vegetation is varied and luxuriant, the rainfall sufficient to obviate the need of irrigation; the winter and summer not appreciably differing from that of Central Europe.

The Canyons of the Coast Range. In the narrow valleys which traverse the Coast Range a climate is found which once more calls for special remark as presenting features of some interest and peculiar to these situations. At Spence's Bridge, on the Fraser, a characteristic point, a meteorological station has been established for some years and accurate data of this class of climate obtained. Sheltered as these canyons are from the cold northern winds, they admit the warm breezes of the coast and upon their sides the sun's rays are concentrated with almost tropical intensity. A temperature much warmer than would be expected is the result, as will be seen from the following observations taken during 1892 and compared with those from southern Ontario, the warmest part of eastern Canada:

	MARCH.			OCTOBER		
	Max.	Min.	Av.	Max.	Min.	Av.
Spence's Bridge.....	65.	27.	45.	84.	30.	59.
Guelph, Ontario.....	52.	5.	23.	84.	21.	44.

Although these conditions are too local and limited to be of great importance, an account of the climate in this Province could hardly be considered complete without some reference being made to them. They have also a distinct value as explaining the mild temperatures to be met with in similar situations as far north as latitude 50° , where crops of cereals ripen in a manner which would hardly be expected.

West Coast and Islands. No sooner is the Coast Range crossed than an entirely new order of things becomes manifest, indicating a great change in climatic conditions. Vegetation is extraordinarily luxuriant, forests are everywhere, the undergrowth impenetrably dense. The reason of this is at once apparent when it is seen that the rain-fall attains to some seventy inches, increasing as you proceed north and come more within the immediate influence of the Japan Current, to over a hundred inches. The winters are shorter and much less severe, nor are

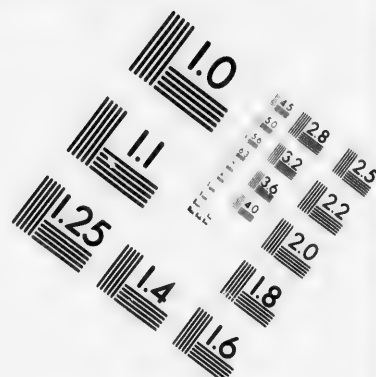
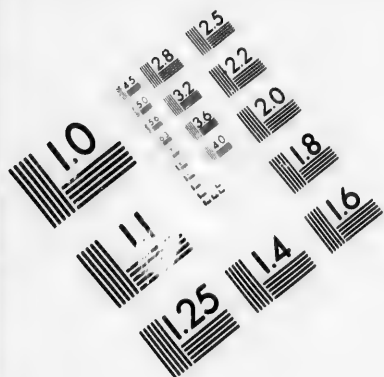
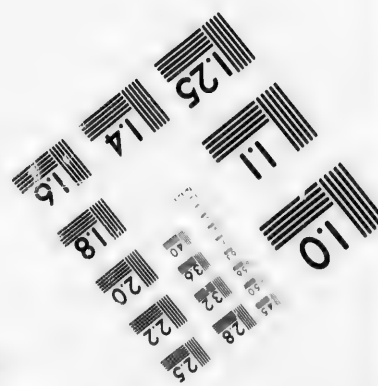
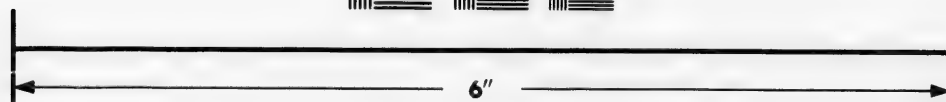
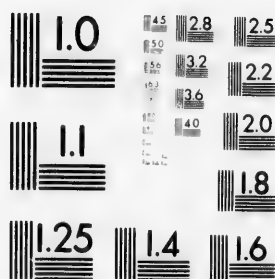


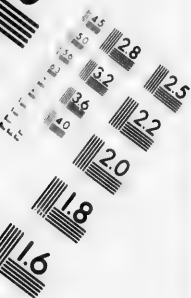
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the summers so hot as those of the Interior ; yet, owing to the increased amount of moisture in suspension, extremes, such as they are, make themselves more felt by the inhabitants. Still no one can call the climate of the coast of British Columbia an unhealthy or uncomfortable one. Equable, sunny and with a singular absence of storm or tempest, the vicissitudes of life, so far as they depend upon climate, are perhaps less accentuated here than in most parts of the globe.

Weather reports are carefully made at some seven stations, of which Agassiz, in the valley of the Fraser, Esquimalt and Nanaimo on Vancouver Island, and Fort Simpson on the North-West Coast, may be taken as providing fair illustrations of the local differences. In January, 1892, the mean temperature at these stations ranged from 36° to 40° ; the maximum rising from 52° to 55° , and the minimum falling from 28° to 17° . It is only right to state that this was a typically mild winter. In 1893, which was as typically a severe season the minimum thermometer registered as low as from -2° to -10° . Severe weather upon the coast never lasts for more than a few days, depending for its continuance entirely upon a persistent north wind ; in fact, it may be said, that without a north wind the temperature of the coast hardly falls below freezing point. In the month of March, 1892, the mean temperature, as recorded at the above stations, ranged from 41° at Fort Simpson (lat. $54^{\circ} 40''$), to 47° at Nanaimo ; the maximum being 57° at the former and 74° at Agassiz, while the minimum was 32° at the latter place and 28° at Fort Simpson.

In April the mean was about 46° at all the stations, the highest reached being 77° at Agassiz and the lowest 30° at Nanaimo. In July the mean had risen to from 57° at Esquimalt and Fort Simpson, singularly enough the extreme southern and northern points, to 61° at Agassiz. During this month the mercury touched 90° at Agassiz, reaching 74° at Esquimalt and Fort Simpson, and 81° at Nanaimo.

In October the mean had fallen to 49° at Esquimalt, and only varied a degree or two from this at the other point of observation ; the maximum at Agassiz being 79° and the minimum 32° at Nanaimo.

From these data a very fair estimate of the coast temperature may be formed as, with the exception of a mild January to which reference has been made, they only vary a few degrees either on one side or the other of the average during a number of years observation.

The mean rain-fall on the coast in January, 1892, was five inches, in July nearly three, being one-fifth above the average.

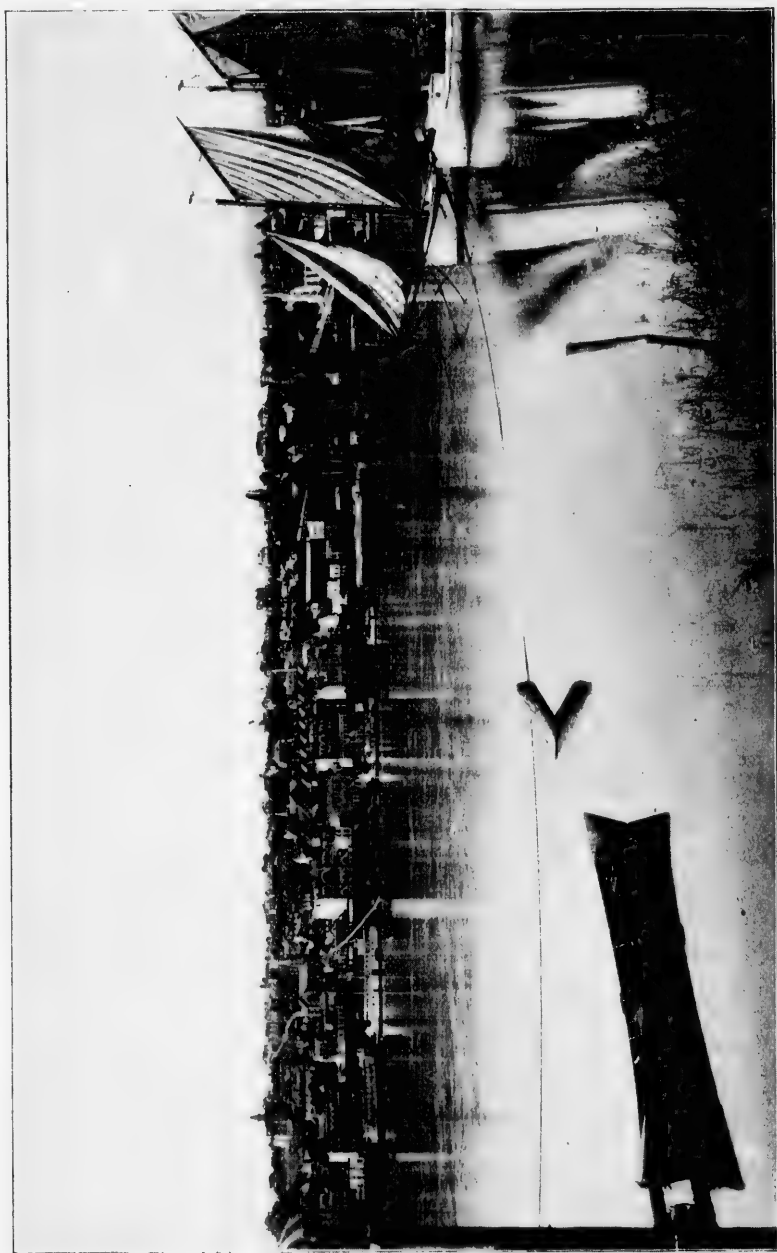
The following is a table showing total precipitation during this year :

	Rainfall, in.	Snowfall, in.
Esquimalt.....	29.	9.
Agassiz.....	58.	53.
Nanaimo.....	35.	36.
Fort Simpson.....	100.	51.

As was previously stated above in the general account of the climate, the driest point on the coast is seen to be the south-eastern extremity of Vancouver Island, which includes Victoria and is represented by the observations taken at Esquimalt. An estimate of the total clouded days at this point in the same year will prove of interest. In April these were five, in May two, in June four, in July none, in August three, September seven, October seven, while in November and December they attained to thirteen and nineteen respectively.

To speak more generally of the climate of this section, the nights, even in the height of summer, are invariably cool, more so than is ordinarily experienced in England during spells of warm summer weather. The harvest time is rarely unsettled so that until recently, many years had elapsed since damage was incurred in reaping the crops. Winters occur every now and then during which, from the absence of northerly winds, no perceptible degree of frost is experienced, and geraniums and other delicate plants can be grown in the open air. Such severe weather as is met with comes usually in short spells during the months of January and February.

Local fogs prevail over the water during the early spring and late autumn, chiefly in November, when they are sometimes a serious hindrance to navigation.



NEW WESTMINSTER CITY.

CENTRE OF THE FRASER RIVER DISTRICT, AND SALMON AND LUMBER INDUSTRIES.

The tides of the coast, between Vancouver Island and the Mainland, as they flow through narrow channels at the northern and southern extremities of the Island (Seymour Narrows and San Juan de Fuca Straits) are very eccentric, and cannot be reduced to a fixed table. For similar reasons the currents and tide-rips which prevail among the islands of the coast are somewhat perplexing and require local study. Wind storms are rare and the shipping suffers little damage on that account.

Northern Interior. In this portion of the Province the higher latitude is responsible for a correspondingly severe climate. In Cariboo and through the Chilcotin country the winters are, for instance, somewhat longer and colder than those experienced in the Okanagan and Columbia Valleys. At Barkerville, in the first named district, the mean January temperature has averaged, for the last four years, 19° , that of April 34° , of July 54° , and October 40° . This, considering the altitude and situation which corresponds with that of Central Russia, is not extraordinarily severe, indeed is very moderate as compared with the interior of the Continent of America far to the south.





VALE DISTRICT.
SEEDING IN THE OKANAGAN COUNTRY.

V. CONCLUSION.

An attempt has been made in the foregoing chapters to show the capabilities of British Columbia for supporting a large population, which may find ample opportunity to engage its surplus of energy and capital in manufacture and commerce. It has been shown also, that the climate of the province is well adapted to physical development, and that its geographical position is such as to command international trade. Nothing has been said of the stability of its form of Government, the equitable administration of law, the protection secured to life and property, the light burden of its national debt, or the advantages provided by a system of free education. About these much might be written, it will, however, suffice the present purpose to allude to them very shortly.

The Government. The inhabitants of British Columbia may exercise the rights of a three-fold citizenship, for they may be Englishmen, Canadians, and British Columbians at the same time, and while it is the rule to vote for representatives in the two latter parliaments, there is no legal impediment to their retaining the franchise in the former. The principles of the Confederation of the various provinces of British North America into the Dominion of Canada need no explanation save as they affect this province. Briefly, they secure absolute autonomy in all respects with the exception of the Customs, the Postal Service, the wardship of the Aboriginal Races, and such other affairs as clearly pertain to the Empire or the Dominion as a whole.

The Dominion Parliament meets annually at Ottawa, and includes in its lower house six representatives from the province elected by popular suffrage, and three senators in its upper house nominated for life by the Crown.

The Provincial Assembly is composed of thirty-three members, of whom five, under the Lieutenant-Governor, form the Execu-

tive Council, or Ministry. The annual session is held at the capital, Victoria, where all legislation affecting the well-being of the province is enacted and the budget of the year discussed and passed. Procedure is the same in all respects as that of the British Parliament.

The franchise is exercised by all males over the age of twenty-one who, being British subjects, shall have resided in the province for one year and shall have been registered on the voters' lists for two months previous to an election. It is thus a purely manhold suffrage, and it will be seen that the people enjoy the utmost liberty in the management of their own affairs compatible with their forming an integral part of the Dominion of Canada and of the British Empire. While these latter privileges conduce in every way to the stability of the province, and to its security in time of war, preserving also the rights and nationality of British subjects, they are thought not dearly purchased by surrendering control of the affairs enumerated above. In point of fact the people are sufficiently occupied in attending to the local administration of their own laws, in which matter they certainly have as much say as in any country in the world.

The Judiciary. There are two Judicial tribunals in the Province, a Supreme Court, and a County Court for each of seven different Districts. The Supreme Court exercises jurisdiction in all cases, civil as well as criminal, arising within the Province, and is presided over by a Chief Justice and four Puisne Judges, who are appointed by the Crown. The mode of civil and criminal procedure is based upon that of England, only departing from it in minor points of technical detail. The jurisdiction of the County Courts has been recently limited in actions of debt to \$200, unless when the debt is liquidated or ascertained by the signature of the parties, when a more extended jurisdiction of \$400 is given. This more extended jurisdiction is also allowed in equity cases. Each County Court is presided over by a Judge appointed by the Crown, who is also, within his District, a local Judge of the Supreme Court, for the purpose of facilitating interlocutory business. Matters of Admiralty are decided in the Admiralty Division of the Exchequer Court of Canada, the Province constituting a separate District of such Court. The presid-

ing Judge for this District is the Chief Justice of the Province. There are also Police Courts presided over by Stipendiary Magistrates and Justices of the Peace. An appeal lies in civil cases to the Supreme Court of Canada, and thence to the Judicial Committee of the Privy Council, whose judgment is final. It is due to the firm and impartial administration of justice since early days, that the province has attained its high character for law and order.

The Land Laws. In a country where land is the staple investment, where every thrifty man owns real property, and where there are practically no agricultural tenants, it is of the first importance that titles should be secure, transfer easy, and registration in every way beyond possibility of error. The system has been framed to that end, and is both simple and safe. All holdings are by grant from the Crown, and every transfer and incumbrance upon property must be registered so that the definite ownership can at once be ascertained beyond dispute. The regulations under which land can be acquired from the Crown by pre-emption are just and liberal, as will be seen by reference to the brief abstract of the Land Act in the Appendix.

Public Debt. The high standing of British Columbian consols—which are at the head of nearly all Colonial securities—is sufficient indication of the solvency of the Province. While its revenue has more than doubled in the last ten years, the whole public debt does not greatly exceed one year's income, as the following statement will show :

DEBT OF THE PROVINCE AT THE CLOSE OF FISCAL YEAR, 30th JUNE, 1892.

Total amount of Funded Debt.....	\$2,713,690 00
Less Sinking Fund Account	403,490 00
Balance due on Funded Debt	\$2,310,200 00
<i>Cr.</i>	
Amt. due Province by Dominion (bearing 5%)	\$583,021 00
Amt. on deposit in banks.....	665,400 00
	\$1,248,421 00
<i>Deduct—</i>	
Amts. due by Province for Intestate Estates,	
Railway Subsidies in trust, etc., etc.	\$162,000 00
	1,086,421 00
Actual debt of the Province.....	\$1,223,789 00

The Public School System. The education of the people has been regarded by the Government of British Columbia as one of the duties of the State. Free schools are established throughout the province with a liberality which is believed to be unequalled, or at any rate unsurpassed, by any other community. By the constitution of the Public School Act, it is provided that wherever a minimum attendance of ten scholars can be secured, the Government will supply a certificated teacher, so that there is hardly a settlement in the country too small for the advantages of a sound, common-school education to be afforded its children. There are, in consequence, 149 schools throughout the province giving instruction to 10,773 children, being about a sixth of the entire white population, which, having regard to the number of single adults, is a very large proportion. This is a good showing and justifies the Government in its policy of spending more of its revenue on education than on any other item. In fact about one-sixth of the total income of the State is thus expended, irrespective of the large annual grant from the Department of Lands and Works for the erection of school-houses, etc., and a sum almost equal which the city municipalities pay in salaries to their own teachers. In these latter there are also high schools which provide a more advanced instruction for senior scholars, and by whose agency many of the more promising pupils are enabled to qualify as teachers. Yearly examinations by which the knowledge of those engaged in teaching is tested, are held at the principal centres, under a Government Inspector and Board of Examiners; the schools are also directly under the supervision of the Minister of Education, and accurate data of their progress supplied in the annual reports. Of course it is within the power of those who have reaped the advantages of an older civilization to depreciate these efforts for the education of the people. It is not professed that they are ideal or above criticism, yet when it is considered how absolutely beyond the reach of a voluntary system, settlers in the rural districts or a new country must of necessity be, and how even in the towns such a system, would depend, so far as the bulk of the children were concerned, upon accident and caprice, the care of the Government in this particular cannot but be regarded as praiseworthy and to the best interests of the people.

With these brief references to the political welfare of the province the work of the writer is finished, since the more ordinary avenues of trade need hardly be alluded to; they are, and must continue to be just what the people make them. In the last ten years, quarries, brick-yards, pottery works, furniture manufactories, soap-boiling works, and many other industries have been established by the enterprise of individuals, and greatly to the advantage of the community at large. Electric tramways and lighting are to be found in each principal city. Indeed there is no present lack of the comforts of civilized life, and there is a plentiful store of natural materials as yet undrawn upon, to minister to the luxury of future ages. Marbles, sand-stones and cements, are, ready to take the place of frame-houses and wooden sidewalks; already the business portion of Victoria has been practically rebuilt, and the low structures of a former generation have been exchanged for lofty blocks of stone or brick. But all this is yet in its infancy, and a forced progress is rather to be dreaded than too slow a development.

In conclusion, and at the risk of incurring the charge of repetition it must be once more asserted that in making public these facts there is no desire either on the part of the writer or on that of the Government which sanctions his work, to invite irresponsible and ill-directed immigration. Because it has been considered proper to place before intelligent readers the true state of this province in the same way that the conditions of other countries are brought to the notice of the reading public it must not for one moment be supposed that a bid is being made for the floating surplus of humanity. British Columbia must sooner or later attain that position which has been foreshadowed, although the time she will take in reaching it will greatly depend on many circumstances beyond her own control. For her future is undoubtedly bound up in that of the Pacific. Should the progress which has been witnessed upon her shores during the last thirty years continue in a ratio proportionate, the province will have become at the end of a century one of the most valuable and most wealthy of all the British possessions. But a broad distinction should be drawn in the minds of intending settlers between prospects of future advancement and the certainty of

present hardships. If sturdy, resolute, independent people who can weather the storm of discouragement and stand against all manner of disappointment, choose to venture their all, as others have done before them, in untried places, well and good ; theirs it is to build the tower when they have counted the cost ; but let there be no delusions or dreams of lotus-eating, national greatness is not attained by the help of such constituents, nor are personal fortunes acquired by any such means.



APPENDIX A.

THE MINERAL WEALTH OF BRITISH COLUMBIA.

A Paper read before the Royal Colonial Institute, March 14th, 1893,
by DR. G. M. DAWSON, C.M.G., F.R.S.

For fifteen years or more I have been engaged in the exploration and geological examination of British Columbia in connection with the Geological Survey of Canada, and have thus enjoyed the opportunity of traversing and inspecting a large part of this province of Canada. The information gained has been embodied in a series of official reports, published from year to year, and it is only because it may be assumed that such reports are seldom read that I can venture to hope that what I have to say may possess some interest or novelty at the present time.

Less than one hundred years ago, the region now named British Columbia was wholly unknown. At about that time its coast began to be explored in some detail by Cook, Vancouver, and other navigators, and soon after, this coast became the resort of a certain number of trading vessels in search of furs; but none of these adventurers acquired any knowledge of the interior of the country. Almost simultaneously, however, the explorers and traders of the North-West and Hudson's Bay Companies, pushing on and extending their operations from point to point in the interior of the North American Continent, began to enter the hitherto mysterious region of the Rocky Mountain from its inland side, Mackenzie was the first to reach the Pacific, and following him came Fraser, Thompson, Campbell and others, all Scotchmen in the service of these trading companies, till by degrees several trading posts were established, and "New Caledonia," as the whole region was then named, came to be recognised as an important "fur country."

This era of discovery, with its results, constitutes the first chapter in the known history of British Columbia. It is replete with the achievements and adventures of these pioneers of commerce, who with their limited resources, and without knowing that they had achieved fame—often without even placing their journeys on record—extended the operations of their Companies across a continent. But this chapter, though full of interest, is not that with which we are at present concerned. It must suffice to say that what is now British Columbia remained a "fur country," and that alone, for many years. The existence of coal upon its coast was recognised by Dr. Tolmie, an officer of the Hudson's Bay Company, as early as 1835; but though small quantities of coal were actually obtained from natural outcrops from time to time, for the use of blacksmiths at the Company's posts, no importance appears to have been attached to the dis-

covery. The world was at that time very spacious, and the Pacific Ocean was still regarded rather as a field for the exploration of navigators than as a highway of commerce between America and Asia.

In 1849 gold was discovered in California, and with the resulting influx of miners, the seizure of that Mexican province by the United States, justified, if justifiable at all, by its subsequent development, all are familiar. Two years later, a discovery of gold occurred on the Queen Charlotte Islands, now forming part of British Columbia. This constitutes an interesting episode by itself, but, though some attention was drawn to it for a time, no substantial results followed, and no alteration in the condition of the country as a whole was brought about. The meaning and the worth of this particular discovery yet remain to be determined.

In 1857, however, four or five French Canadians and half-breeds, employés of the ubiquitous Hudson's Bay Company, found gold on the banks of the Thompson, a tributary of the Fraser River, and their discovery becoming known, changed the whole fortunes of the country. California was at this time filled with gold miners, and it required only the rumor of a new discovery of gold to create a new "excitement." In the following year, it is estimated that within three months over 20,000 people arrived at the remote trading post which then stood upon the present site of the city of Victoria, while many more made their way overland to the new El Dorado.

The difficulties in the way of these fortune hunters were great. The country was without roads or other means of communications, save such rough trails and tracks as had served the purposes of the natives and those of the fur traders. The Indians, if not openly hostile, were treacherous, and not a few of the men who actually reached the Fraser Canyons were never again heard of.

The Fraser and Thompson were at this time the objective points, and much of the lengths of these rivers were impracticable torrents. It is not, therefore, surprising that by far the larger part of those engaged in this sudden migration returned disappointed, many without ever reaching their destination. Some, however, persevered, several thousand miners actually got to work on the auriferous bars of the Fraser, and a new state of affairs was thus fairly inaugurated.

To follow the rapid progress of these miners along the Fraser and Thompson with their tributaries, would be full of interest, though the records of their work now existing are scanty, but this again would lead us too far afield. The gold found on the lower reaches of the Fraser was what is known to miners as "fine" gold, or gold in very small scales or dust, minutely divided. Further up "coarser" gold was obtained, and the miners very naturally jumped to the conclusion that somewhere still further up the great stream, the source of all the gold should be found. Thus, with restless energy, they pushed on till before long the Cariboo country, some 400 miles from the sea, was reached; and here the richest deposits of alluvial or "placer" gold were found, and for a number of years continued to be worked, with results which, considering the comparatively small number of men engaged, were most remarkable.

Later and more thorough investigations show that the theory so readily adopted by the miners was incorrect; that there is no regular gradation in amount or "coarseness" of gold from the lower part of the Fraser to the head waters in Cariboo, but that the gold found on the bars of the river is of more local origin. Still the theory referred to, as a matter of fact, led the miners to Cariboo, which proved not only to be the richest district so far discovered in British Columbia, but for its area one of the richest placer mining districts ever found.

In this district the valleys of two streams, Lightning and Williams Creeks, have been the most remunerative, and these and their tributaries have actually yielded the greater part of the gold obtained. The work was begun by the washing of the gravels of the streams themselves, but with the experience already in California and in Australia, the miners soon began to search deeper. The valleys through which these streams flowed were found to be filled to a considerable depth by loose material, gravel and boulder-clay due to the glacial period or to inwash from the sides of the bordering mountain ranges; and in sinking beneath all this material the channels of older streams, the predecessors of the present, were found, with their rocky beds smoothed and worn and filled with rounded boulders and gravel. These contained vastly richer deposits of gold, because they represented the concentrated accumulations of great periods of continued work by natural forces of denudation and river action.

This discovery, once made, led to the initiation of more extended mining operations, which often necessitated large expense in labour and the construction of heavy pumping machinery; but the results as a rule repaid the enterprising miners. Thus the old deeply buried channel of Lightning Creek was found to average something like \$200 in gold to each running foot of its length, while considerable lengths of Williams Creek yielded as much as \$1,000 to the same unit of measurement.

Williams Creek affords some notable instances of the extraordinary concentration of "coarse" gold in limited areas:—Thus, from Steele's claim, 80 x 25 feet, over \$100,000 worth of gold was obtained. From the Diller Company's claim, it is stated that in one day 200 lb. weight of gold, valued at \$38,400, was raised; and in 1863, twenty claims were producing from 70 to 400 ounces of gold per diem. Four hundred miners were at work on Williams Creek in this year, which is still admiringly spoken of as the "golden year."

Though, like Williams Creek, discovered in 1861, the deep channel of Lightning Creek was not successfully reached till 1870, but great developments followed. The Butcher claim at one time yielded 350 ounces of gold a day; the Aurora, 300 to 600 ounces; and the Caledonia 300 ounces.

It must be remembered that the Cariboo mining district is situated in a high and densely forested mountainous region, which, because of its inaccessible character, had remained almost unknown even to the wandering native hunters. At the time in which these great discoveries in it occurred, it was reached only with extreme difficulty by trails or imperfect tracks, over mountains and across unbridged rivers. Every article required by the miner was obtained at an excessive

cost ; but all these drawbacks did not prevent the rapid growth of typical mining camps in the centre of this remote wilderness, with their accompanying lavish expenditure and costly if rude pleasures. So long as the golden stream continued to flow in undiminished volume, everything that gold alone could buy was to be obtained in Cariboo.

Perhaps more worthy of note is the fact that the development of these mines was carried out entirely by the miners themselves. No outside capital or backing was asked for or obtained. Money made in one venture was freely and at once embarked in another, and the investors were to be found working with pick and shovel in the shaft or drift.

But the lengths of the rich old channels on both these famous creeks which could be worked in this way proved to be limited to a few miles. Below a certain point in each case, the "bed rock" was found to be at so great a depth, that it was not possibly to reach it through the loose and water-saturated materials filling the old valley. Thus the great yield of gold became gradually reduced to comparatively modest proportions, and, at the present time, mining in the Cariboo district is mainly confined to hydraulic workings, by which poorer ground is utilised and a much larger quantity of material requires to be removed to obtain a given amount of gold. But the old valleys of Cariboo have never ceased to produce gold, and in 1892 their product still amounted in value to about \$200,000.

It has been impossible to follow the fortunes of the Cariboo mining district in any detail, and time can only be afforded to name the other placer mining districts of the province. The Omineca district was discovered soon after Cariboo, but little was done there till 1867. This district is situated in latitude 56°, in the drainage basin of the Peace River, and, though so remote, has produced a considerable quantity of gold. Still further to the north, in latitude 58°, is the Cassiar district, first found to be auriferous in 1872, for some years thereafter resorted to by many miners, and still a mining centre not without importance. This is the northernmost mining region of British Columbia proper, but beyond the 60th parallel (forming the northern boundary of the province) alluvial gold mining has of late years been developed in the Yukon district, embracing the numerous upper tributaries of that great river, and extending to the borders of the United States territory of Alaska.

Neither must it be forgotten to note, that the working of alluvial gold deposit of greater or less importance has occurred at many places in the southern part of the province, to the east of the Fraser River, including Big Bend, Similkameen, and Kootenay districts, from all of which some gold still continues to be produced by the old methods.

The story of the discovery and development, the palmy days and the gradual decline in importance of any one of these mining regions, rightly told and in sufficient detail, would constitute in itself a subject of interest. But without attempting to do more than name the districts here, it is of importance to note how general, throughout the whole extent of the great area of British Columbia, the occurrence of deposits of alluvial gold has proved to be. The gold thus

found in the gravels and river beds is merely that collected in those places by natural processes of waste, acting on the rocks, and in the concentration of their heavy materials during the long course of time. The gold has been collected in these places by the untiring action of the streams and rivers, and it must in all cases be accepted as an indication of the gold-bearing veins which traverse the rocky substructure of the country, and which await merely the necessary skill and capital to yield to the miner still more abundantly.

Nevertheless, the results of alluvial or placer gold mining alone in British Columbia have not been insignificant, for, since the early years of the discovery, the province has contributed gold to the value of some \$50,000,000 to the world.

One feature in particular requires special mention, and this is a deduction which depends not alone on experience in British Columbia, but which is based as well on that resulting from the study and examination of other regions. The "heavy," or "coarse" gold, meaning by these miners' terms the gold which occurs in pellets or nuggets of some size, never travels far from its place of origin. It is from this point of view that it becomes important to note and record the localities in which rich alluvial deposits have been found, even when the working of these has been abandoned by the placer miner. Their existence points to that of neighbouring deposits in the rock itself, which may confidently be looked for, and which are likely to constitute a greater and more permanent source of wealth than that afforded by their derived gold.

Reverting for a moment to the Cariboo district, where such notably rich deposits of alluvial gold have been found within a limited area, and where, very often, the gold obtained has been actually mingled with the quartz of the parent veins, it cannot be doubted that these veins will before long be drawn upon to produce a second golden harvest. This district has suffered and still suffers from its great distance from efficient means of communication; but, notwithstanding this, praiseworthy efforts have already been made towards the development of "quartz mining," while much also remains to be done in utilising by operations on a larger scale, and with better appliances, the less accessible deposits which have so far baffled the efforts of the local miner.

It is necessary to bear in mind that alluvial gold mining or placer mining requires but a minimum amount of knowledge on the part of the miner, though it may call for much individual enterprise and effort when a new and difficult region is to be entered. Any man of ordinary intelligence may soon become an expert placer miner. It is after all, in the main, a poor man's method of mining; and, as a rule, the placer miner lacks the knowledge as well as the capital necessary to enable him to undertake regular mining operations on veins and lodes. However promising the indications may be for such mining, he either does not appreciate them, or passes them over as being beyond his experience or means. He would rather travel hundreds of miles to test a new reported discovery, than spend a summer in endeavouring to trace out a quartz reef, with the uncertain prospect of being able to dispose of it at some later date.

Thus, though the development of placer mining in British Columbia began a new history for that great region, raising it from the status of a "fur country" to

that of an independent colony, and subsequently to that of a province of Canada, there remained a gap to be bridged in order that the province should begin to realise its proper place among the mining regions of the world. It was necessary that railways should be constructed to convey machinery and carry ores, as well as to bring to the metalliferous districts men who would not face the hardships of pioneer travel in the mountains, but who are in a position to embark the necessary capital in promising enterprises.

For a portion of the province, the construction of the Canadian Pacific Railway has afforded these facilities, but by far the larger part still awaits railway communication. Had the Canadian Pacific Railway, in accordance with some of the surveys made for it, traversed, for instance, the Cariboo district, there can be no doubt that we should have already been able to note great developments there. This railway has, however, been constructed across the southern portion of the province, and in its vicinity, and concurrently with its progress, new mining interests have begun to grow up, of which something must now be said.

Before turning to these, however, I must ask to be allowed to say a few words respecting the development of the coal mines of British Columbia, which was meanwhile in progress.

The discovery of coal upon the coast, at an early date in the brief history of British Columbia, has already been alluded to. Following this discovery, the Hudson's Bay Company brought out a few coal miners from Scotland, and proceeded to test and open up some of the deposits. Thus, as early as 1853, about 2,000 tons of coal were actually raised at Nanaimo. San Francisco already began to afford a market for this coal, and the amount produced increased from year to year. The principal coal mining district remained, and still remains, at Nanaimo, on Vancouver Island. At the close of the year 1888, about four and a half million tons in all had been produced, and the output has grown annually, till in 1891 over a million tons were raised in one year. California is still the principal place of sale for the coal, which, by reason of its superior quality, practically controls this market, and is held in greater estimation than any other fuel produced on the Pacific slope of North America. The local consumption in the province itself grows annually, and smaller quantities are also exported to the Hawaiian Islands, and to China, Japan, and other places. In the various ports of the Pacific Ocean the coal from British Columbia comes into competition with coal from Puget Sound, in the State of Washington, which, because of the high protective duty established by the United States, is enabled to achieve a large sale in California notwithstanding its inferior quality. It also has to compete with shipments from Great Britain, brought out practically as ballast, with the coals of Newcastle in New South Wales, with coal from Japan, and in regard to the Pacific ports of the Russian Empire, with coal raised by convict labour at Duai, on Saghalien Island, in the Okotsk Sea.

Though Nanaimo has been from the first the chief point of production of coal, work has been extended within the last few years to the Comox district, also situated on Vancouver Island; while other promising coal-bearing tracts have

been in part explored and examined on this island and on the Queen Charlotte Islands.

These particular coal regions, bordering on the Pacific Ocean, have naturally been the first to be employed, but they by no means exhaust the resources of the province in respect to coal. Deposits of good bituminous coal are also known in the inland region, and some of these in the vicinity of the line of railway are now being opened up, while others, still far from any practical means of transport or convenient market, have been discovered, and lie in reserve. One of the most remarkable of these undeveloped fields is that of the Crow's Nest Pass, in the Rocky Mountains, where a large number of superposed beds of exceptional thickness and quality have been defined.

Besides the bituminous coals, there are also in the interior of the province widely extended deposits of lignite coals, of later geological age, which, though inferior as fuels, possess considerable value for local use.

In the Queen Charlotte Islands anthracite coal is found, but has not yet been successfully worked; and in the Rocky Mountains, on the line of the Canadian Pacific Railway, coal of the same kind again occurs, near Banff and Canmore stations. The places last named lie just beyond the eastern borders of British Columbia in the adjacent district of Alberta, but require mention in connection with the mineral resources of the province.

The coals of British Columbia may, in fact, be said to represent, in regard to quality and composition, every stage from hard to smokeless fuels, such as anthracite, to lignites and brown coals like those of Saxony and Bohemia. Many features of interest to the geologist might be mentioned in relation to these coal deposits did time permit, but it must not be forgotten to note one principal fact of this kind—the very recent geological age to which all the coals belong. None of the coal of British Columbia are so old as those worked in Great Britain; they are, in fact, all contained in cretaceous and tertiary rocks.

The very general distribution of coals of various kinds in different parts of the province is of peculiar importance when considered in connection with the building of railways and the mining and smelting of the metalliferous ores. It insures the most favourable conditions for the development of these ores, to some further examination of which we must now return.

It is especially worthy of note, that wherever in the United States the Rocky Mountain or Cordilleran region has been traversed by railways, mining, and particularly that of the precious metals, has immediately followed. It appears to require only facilities of transport and travel to initiate important mining enterprises in any part of this region. The building of the Canadian Pacific Railway across the southern part of British Columbia, with the construction of other railway lines in the neighbouring States, near the frontier of the province, have already begun to bring about the same result in this new region; which, till these railways were completed, had remained almost inaccessible. It had long before been resorted to by a few placer miners in search of alluvial gold, and their efforts were attended with some success. Silver-bearing lead ores were also found

to occur there, but under the circumstances existing at the time these actually possessed no economic value. It was impossible to utilise them.

In 1886, some prospectors, still in search of placer gold only, happened to camp in a high mountainous region which has since become familiarly known as Toad Mountain, and one of them, in seeking for lost horses, stumbled on an outcrop of ore, of which he brought back a specimen. This specimen was afterwards submitted to assay, and the results were such that the prospectors returned and staked out claims on their discovery. The ore, in fact, proved to contain something like \$300 to the ton in silver, with a large percentage of copper and a little gold.

In this manner what is now known as the "Silver King" mine was discovered, and, as a consequence of its discovery, the entire Kootanie district, in which it is situated, began to be overrun with prospectors. Hundreds of these men, with experience gained in the neighbouring states of Montana and Idaho, as well as others from different parts of the world, turned their attention to Kootanie. The result has been that within about five years a very great number of metalliferous deposits, chiefly silver ores, have been discovered, and claims taken out upon them. Several growing mining centres and little towns have been established; roads, trails, and bridges have been made, steamers have been placed on the Kootanie Lake and on the Upper Columbia River, and a short line of railway has been built between the lake and river to connect their navigable waters. The immediate centre of interest in regard to mining development in British Columbia has, in fact, for the time being, been almost entirely changed from the principal old placer mining districts to the new discoveries of silver-bearing veins.

So far as they have yet been examined or opened up, the metalliferous deposits of the Kootanie district give every evidence of exceptional value. They consist chiefly of argentiferous galena, holding silver to the value of from \$40 to \$50 to several hundred dollars to the ton. Nelson, Hot Springs, Casloslocan, Illecillewaet, and Golden are at present the principal recognised centres in the new district, but it would be rash as yet to attempt to indicate its ultimate limits.

Though much has already been done in this Kootanie district, two principal causes have tended to prevent the more rapid growth of substantial mining up to the present time. The first of these is the difficulty still existing in respect to the local transport of large quantities of ores; the second, the exaggerated values placed by discoverers upon their claims. While it is evidently just that the prospector should receive an ample remuneration for his find, it is to be noted that the laws of British Columbia are so liberal that he (whatever his nationality) may, at a cost scarcely more than nominal, hold and establish his claim, even though he may be practically without means of developing it. Such development in all cases requires the expenditure of considerable sums, and this must always be of a more or less speculative character, while, even if thus fully proved, it becomes further necessary to incur an additional large expenditure in plant and machinery before any property reaches the status of a going concern. Scarcely an instance can be quoted anywhere of a mine which has paid its own way from

the "grass" down, but almost every prospector is fully convinced that his claim is precisely of this kind.

I have been unable to say anything in detail in regard to the actual modes of occurrence of the ores now being brought to light in the Kootanie district and their geological relations. Neither is it practicable, on the present occasion, to pursue in further detail the history or description of other districts of the province in which more or less good work of a preliminary kind has been done in the development of metalliferous deposits of various kinds. Okanagan, Rock Creek, Nicola, Similkameen, the North Thompson, and Cayoosh Creek can only be named. It has been possible merely to endeavour to indicate in broad lines what has already been done and what must soon follow. Within a few years this province of Canada will undoubtedly hold an important place in the list of quotations of mining stocks in London and elsewhere, and then the further development of its mines will become a subject of common interest from day to day.

In conclusion, I wish to draw attention to one or two ruling features of the actual situation which are too important to be left without mention:—

The Cordilleran belt, or Rocky Mountain region of North America, forming the wide western rim of the continent, has, whenever it has been adequately examined, proved to be rich in the precious metals as well as in other ores. This has been the case in Mexico and in the western states of the American union. Though some parts of this ore-bearing region are undoubtedly richer than others, generally speaking it is throughout a metalliferous country. The mining of placer or alluvial gold deposits has in most cases occurred in advance of railway construction; but this industry has always proved to be more or less transitory in its character, and has almost invariably been an indication of future and more permanent developments of a different kind. Placer gold-mining has, in fact, often been continued for years and then abandoned, long before the gold and silver-bearing veins in the same tract of country have been discovered and opened up. This later and more permanent phase of mining has followed the construction of railways and roads, and the series of conditions thus outlined are repeating themselves in British Columbia to-day.

There is no reason whatever to believe that the particular portions of British Columbia now for the first time opened to mining by means of the Canadian Pacific Railway, are richer in ores than other parts of the province. On the contrary, what has already been said of the Cariboo district affords *prima facie* evidence of an opposite character. The province of British Columbia alone, from south-east to north-west, includes a length of over 800 miles of the Cordilleran region; and, adding to this the further extension of the same region comprised within the boundaries of the Dominion of Canada as a whole, its entire length in Canada is between 1,200 and 1,300 miles. This is almost identical with the whole length of the same region contained within the United States, from the southern boundary with Mexico to the northern with Canada.

Circumstances have favoured the development of the mines of the Western States of the Union, but it is, as nearly as may be, certain, that the northern half

of the similar region will eventually prove equal in richness to the southern, and that when the mines of these Western States may have passed their zenith of productiveness, those of the north will be still increasing in this respect. The explorations of the Geological Survey of Canada have already resulted in placing on record the occurrence of rich ores of gold and silver in various places scattered along the entire length of the Cordilleran region in Canada, and though so far we have to chronicle only an awakening of interest in the southern part of British Columbia, these discoveries stand as indications and incentives to further enterprise to the north.

While the remote and impracticable character of much of this northern country places certain obstacles in the way of its development, on the other hand the local abundance of timber and water-power in it afford facilities unknown in the south, which will be of importance whenever mining operations have actually been set on foot.

No attempt has been made in this brief sketch of the mineral wealth of British Columbia to enumerate the various ores and minerals which have so far been found within the limits of the province in any systematic manner. Nothing has been said of the large deposits of iron, from some of which a certain amount of ore has already been produced, and which wait to realise their true importance, merely the circumstances which would render their working on a large scale remunerative. Copper ores have also been discovered in many places. Mercury, in the form of cinnabar, promises to be of value in the near future, and iron pyrites, plumbago, mica, asbestos, and other useful minerals are also known to occur. In late years platinum has been obtained in alluvial mines in British Columbia in such considerable quantity as to exceed the product of this metal from any other part of North America.

While, therefore, the more important products of this western mountain region of Canada are, and seem likely to be, gold, silver, and coal; its known minerals are already so varied, that, as it becomes more fully explored, it seems probable that few minerals or ores of value will be found to be altogether wanting.

Respecting the immediate future of mining, which is the point to which attention is particularly called at the present time, it may be stated that coal-mining rests already on a substantial basis of continued and increasing prosperity; while the work now actually in progress, particularly in the southern part of the province, appears to indicate that, following the large output of placer gold, and exceeding this in amount and in permanence, will be the development of silver mines, with lead and copper as accessory products. The development of these mining industries will undoubtedly be followed by that of auriferous quartz reefs, in various parts of the province, while all these mining enterprises must react upon and stimulate agriculture and trade in their various branches.

Because a mountainous country, and till of late a very remote one, the development of the resources of British Columbia has heretofore been slow, but the preliminary difficulties having been overcome, it is now, there is every reason to believe, on the verge of an era of prosperity and expansion of which it is yet difficult to foresee the amount or the end.

APPENDIX B

ABSTRACT OF LAND ACT,

Shewing the Regulations under which Land may be acquired by Pre-emption.

N. B.—No land is *sold* by the Government, except by public auction, on rare occasions, when its adaptability to some special purpose subjects it to competition. It is thus secured as much as possible to the uses of the bona-fide settler.

PRE-EMPTION OF SURVEYED AND UNSURVEYED LANDS.

5. Except as hereinafter appears, any person being the head of a family, a widow, or single man over the age of eighteen years, and being a British subject, or any alien, upon his making a declaration of his intention to become a British subject, before a Commissioner, Notary Public, Justice of the Peace, or other officer appointed therefor, which declaration shall be in the Form No. 1 in the Schedule to the "Land Act," and upon his filing the same with the Commissioner, may record any tract of unoccupied and unreserved Crown lands (not being an Indian settlement) not exceeding one hundred and sixty acres in extent: Provided, that such right shall not be held to extend to any of the aborigines of this continent, except to such as shall have obtained permission in writing to so record by a special order of the Lieutenant-Governor in Council. 1893, s. 1.

7. Any person desiring to pre-empt as aforesaid shall, if the land be unsurveyed, first place at each angle or corner of the land to be applied for a stake or post at least four inches square, and standing not less than four feet above the surface of the ground; any stump of a tree may be used for a post, provided it be squared as aforesaid, and of the required height and dimensions, and upon each post a notice in the following form shall be affixed:—

A. B.'s land, N. E. post." (meaning north-east post); "*A. B.'s land, N. W. post*" (meaning north-west post); and so on, as the case may be.

8. Any person desiring to pre-empt surveyed land must make application in writing to the Commissioner of the district in which the land is situate to record such land, and in such application the applicant must give the surveyed description of the land intended to be recorded, and enclose a sketch plan thereof, and such description and plan shall be in duplicate; the applicant shall also make before a Justice of the Peace, Notary Public, or Commissioner, and furnish the Commissioner with, a declaration in duplicate, in the Form No. 2 in the Schedule hereto; and if the applicant shall in such declaration make any statement, know-

ing the same to be false, he shall have no right at law or in equity to the land the record of which he may have obtained by the making of such declaration. 1884, c. 16, s. 6.

12. Upon the compliance by the applicant with the provisions hereinbefore contained, and upon payment by him of the sum of two dollars to the Commissioner, the Commissioner shall record such land in his favour as a pre-emption claim, and give him a certificate of such pre-emption record. 1884, c. 16, s. 10.

13. The pre-emptor shall, within thirty days after the date of the certificate of record, enter into occupation of the land so recorded; and if he shall cease to occupy such land, save as hereinafter is provided, the Commissioner may, in a summary way, upon being satisfied of such cessation of occupation, cancel the record of the settler so ceasing to occupy the same, and all improvements and buildings made and erected on such land shall be absolutely forfeited to the Crown, and such settler shall have no further right therein or thereto; and the certificate of record given to such pre-emptor shall be deemed to be null and void to all intents and purposes whatsoever; and the said land may be recorded anew by the Commissioner, in the name of, or upon application by, any person satisfying the requirements in that behalf of this Act. 1884, c. 16, s. 11.

14. The occupation in this Act required shall mean a continuous bona-fide personal residence of the pre-emptor, or of his family, on the land recorded by him. 1891, c. 15, s. 1.

15. Every pre-emptor, as well as his family (if any) shall be entitled to be absent from the land recorded by such settler for any one period not exceeding two months during any one year. He shall be deemed to have ceased to occupy such land when he shall have been absent, continuously, for a longer period than two months, except as hereinafter provided. 1884, c. 16, s. 13; 1891, c. 15, s. 2.

16. If any pre-emptor shall show good cause to the satisfaction of the Commissioner, such Commissioner may grant to the said pre-emptor leave of absence for any period of time, not exceeding six months in any one year, inclusive of the two months' absence from his claim provided for in section 15. In cases of illness, vouched for by sufficient evidence, or in the cases of immigrant settlers returning to their former homes to bring their families to their homesteads, or in other special cases, the Chief Commissioner of Lands and Works may in his discretion grant an extension of time during which the pre-emptor may be absent from his claim, without prejudice to his right therein. 1884, c. 16, s. 14; 1890, c. 22, s. 3; 1891, c. 15, s. 3.

17. No person shall be entitled to hold at the same time two claims by pre-emption; and any person so pre-empting more than one claim shall forfeit all right, title and interest to the prior claim recorded by him, and to all improvements made and erected thereon, and deposits of money made to Government on account thereof; and the land included in such prior claim shall be open for pre-emption. 1884, c. 16, s. 15.

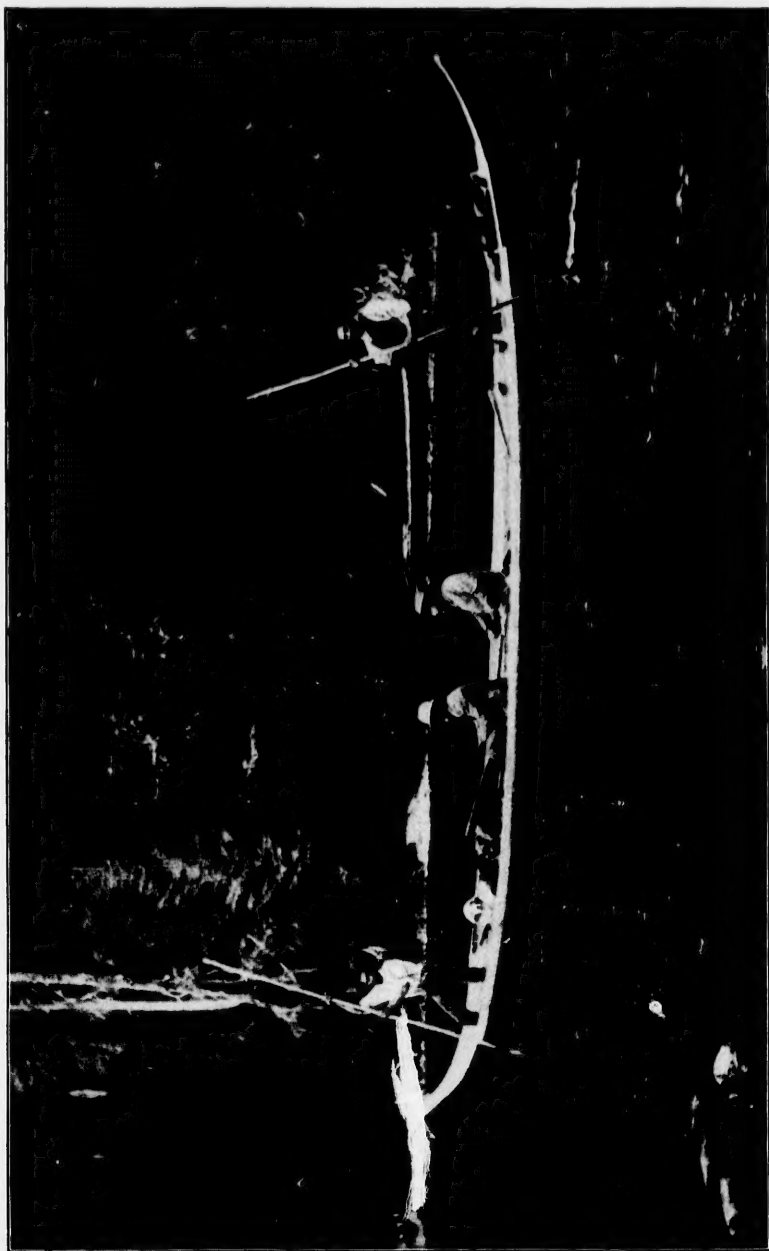
22. A pre-emptor of surveyed land shall be entitled to receive from the Commissioner a certificate, to be called a "Certificate of improvement," upon his proving to the Commissioner, by the declarations in writing of himself and two other persons, or in such other manner as the Commissioner may require, that he has been in occupation of his pre-emption claim from the date of the record thereof, and has made permanent improvements thereon to the value of two dollars and fifty cents per acre. 1884, c. 16, s. 20.

24. Every person pre-empting surveyed or unsurveyed land shall pay one dollar per acre for the same, to the Commissioner at his office, in four equal annual instalments of twenty-five cents each per acre. The first instalment shall be due two years from the date of the record of the land pre-empted, and such subsequent instalment yearly thereafter, until the full payment is paid: Provided, however, that the last instalment shall not be payable until the land so pre-empted, if unsurveyed, shall have been surveyed. 1884, c. 16, s. 22.

25. After the grant of a certificate of improvement as aforesaid to the pre-emptor, and payment of one dollar per acre for the land has been made, a Crown grant or conveyance of the fee simple of and in the land mentioned as recorded in such certificate, shall be executed in favour of the said pre-emptor, upon payment of the sum of five dollars therefor; but no such Crown grant shall be executed in favour of any alien who may have declared as aforesaid his intention of becoming a British subject, until such alien shall have become, according to law, a naturalized subject; and no Crown grant shall issue until the pre-emptor or his family shall have bona-fide occupied the pre-emptor for the last two years. 1884, c. 16, s. 23; 1891, c. 15, s. 12.

26. No transfer of any surveyed or unsurveyed land pre-empted under this Act shall be valid, until after a Crown grant of the same shall have been issued. 1884, c. 16, s. 24.





VANCOUVER ISLAND.

A DAY'S FLY-FISHING ON THE NIMKISH.

APPENDIX C.

SPORT IN BRITISH COLUMBIA.

The Province has been described by no mean authority as "a sportsman's paradise." This title is well chosen, if by the term sportsman is understood the true animal hunter, not the mere animal slayer. For though objects of the chase abound, facilities for their easy slaughter are, fortunately, by no means so plentiful. Men who are fond of the *duress* of sport who do not stint their pains in the pursuit of game, can always enjoy the severities of hard travelling rewarded by a successful hunt; but if the ambition of the "sportsman" be to obtain a maximum bag, with a minimum outlay of personal effort, it were better that he should remain on his own covers at home.

Of the cervidæ the Moose stands at the head. Its distribution is confined almost entirely to the water-shed of the Arctic. The Wapiti is found only on Vancouver Island, in the interior of which it is still tolerably abundant. Next in size comes the Cariboo, found throughout the wooded plateaux of the Interior. In interest not behind these is the Mountain Sheep, or Big-horn, (not found west of the Coast Range), of which this Province is now the only accessible hunting ground.

Amongst smaller deer the Mule-deer is chief, and the Black-tail and Virginian complete the list, while the Mountain Goat is sole representative of the Antelope tribe, the graceful Prong-horn not penetrating farther west than the Rocky Mountains.

First among the Bear tribe is the Grizzly or "Silver-tip" which a few years ago could be met with close to the C.P.R. track in the Selkirks, but the relentless war waged upon him by mining prospectors with sporting proclivities has driven him back into the fastnesses of the Big Bend. He is however still an object of the dread or solicitude of settlers through the Mainland. His more humble brother the Black bear and its variety the Cinnamon are common throughout the Province.

Of the Felidæ, the lithe and cowardly Puma, Panther or American Lion, is a pest to sheep farmers on the Island. Outlawed with a price upon his head (\$5.00) he skulks round the settlements until his depredations are put an end to by a well directed bullet. Wolves, black and grey, are more frequently heard than seen.

Of birds, abundant sport can be obtained with duck, prairie-chicken and blue and willow grouse. Pheasant has been recently introduced in the neighbourhood of Victoria, and under game restriction, has become very plentiful.

Fly Fishing. Excellent trout fishing can be obtained on a great number of the streams throughout the Interior and on Vancouver Island. The fish exhibit none of that reluctance in taking a fly, for which Pacific Coast salmon are proverbial.

The catch upon the occasion illustrated, with four rods, in one day, Aug. 3, 1893, amounted to 146, average weight $1\frac{1}{2}$ lbs. This is not an extraordinary catch.

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